



# Digitization, innovation, and copyright: What is the agenda?

Strategic Organization

11(1) 110–121

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DOI: 10.1177/1476127012460940

soq.sagepub.com



**Shane Greenstein**

Northwestern University, USA

**Josh Lerner**

Harvard Business School, USA

**Scott Stern**

Sloan School at MIT, USA

## Abstract

This essay discusses the need for research on the consequences of digitization, as well as the impact of alternative policies governing the creation and use of digital information. This agenda focuses on the development of research to investigate the economics of digitization, to analyze the governance of intellectual property in this sector, particularly through copyright, and to pioneer approaches to analyzing measurement of digitization. This agenda overlaps with many related open questions in organizational and strategy research.

## Keywords

Copyright, digitization strategy governance, intellectual property

## Motivation

The increasing creation, support, use, and consumption of digital representation of information has touched a wide breadth of economic activities. In less than a generation the costs of storage, computation, and transmission declined by several orders of magnitude, enabling a lowering of cost in a range of activities by a similar order of magnitude, and enabling the creation of an enormous range of new applications. This digitization has transformed social interactions, facilitated entirely new industries and undermined others, and reshaped the ability of people – consumers, job seekers, managers, government officials, and citizens – to access and leverage information.

Our interests today are not with the causes of digitization, but, rather, with its consequences for market actors – for their choices over strategic organization, market conduct, and public policies. Our starting point is the gap between research and recent changes. Our goal is to identify and stress unaddressed research areas, principally in questions about business strategy and economics touched by legal forms for governing property rights in information, namely, copyright and commons. If

the digitization of information has dramatically changed the form of expression, its delivery, and its use, then what does that imply for the strategies that rely on its ownership?

This essay particularly focuses on the aspects of the agenda that overlap with the development of a more systematic empirical research initiative towards understanding the economics of digitization at the NBER, which the three of us codirect. It is an agenda with a potentially wide research audience, and many of its core questions overlap with many research interests in the strategy and organization research community.

## Strategic organization

In many respects, this range of questions is not a new topic for scholars of organizational strategy. After all, many widely read books from over a decade ago addressed many elements of this agenda. For example, some of these provide analysis of organization strategy in response to digitization (e.g., Evans and Wurster, 2000; Shapiro and Varian, 1999), analysis of restructuring of existing organizational processes in response to digitization (e.g., Gates, 1999; Hammer and Champy, 1993), and analysis of the restructuring of social relations in conjunction with the diffusion of digital technologies (e.g., Castells, 2001).

Yet, part of this agenda could not have been addressed by books a decade ago because the Web looked different. Social networking was but a prediction in the late 1990s, and the first successful mass market platform, Friendster, had yet to be founded. Facebook's founders were not yet in college. The commons was also still experimental among commercial users, finding its first widespread use with Linux and Apache in the 1990s. Non-programming applications such as Flickr, or Wikipedia were barely operational at the turn of the new millennium, and others, such as Yelp, had not been founded. The search-engine-dominated web, especially as operated by and dominated by Google today, did not exist until the keyword auction was invented, and, once again, that invention did not develop into mass market use until after the 1990s.

There is also a need to rethink concepts. During the dot-com boom of the latter part of the 1990s it was fashionable to view firms as threatened by the potential for technological disruption (Christensen, 1997). In popular conversation every firm was at risk, their prior organizational logics at risk to be torn asunder as quickly as the earliest competitive casualties, such as music retailing and travel services. It was common to anticipate the replacement of intermediaries from a range of transactions with online equivalents with low transaction costs.

Enough time has passed to observe the variance between forecasting and reality. While disintermediation did arrive quite visibly in travel services and music retailing, it was far slower to come to electronic retailing, which is still a small fraction of total retailing. It also was slower to impact newspapers and online gaming than anticipated by many, albeit it eventually did lead to change in the most recent decade. More to the point, it was forecast in many areas where participants merely adjusted their behavior, such as in business-to-business and real estate markets. And disintermediation simply has not arrived in television entertainment and movies and cable services, though not for lack of trying from a range of online participants.

Just as meaningfully, futurists did not anticipate the organizational form that would predominate. It did not get rid of intermediaries. Rather, in that new form intermediaries played an essential role, just a new one. The present predominance of the Apple and Google platforms, for example, belies the forecasts at the end of the dot-com bust that stressed the inevitable triumph of Sony, Microsoft, and Nokia in the next era of online commerce (to use but one example). In short, analysis of the evolution of strategic advantage in the presence of technological evolution remains alive and well, and requires updating.

Important areas for inquiry are strategic questions about networked organizational forms. Do decentralized market transactions best allow complementary firms to adapt to new opportunities? When do sponsored and non-proprietary platforms – a reconfigurable base of compatible components on which users build applications – serve as effective intermediary between groups with different interests? Why have some of the most prominent online services of the present era – Ebay, Facebook, Google search, iTunes – taken on governance modes that reflect the logic of platforms, and how does that shape the comparative value of those with unique assets, such as copyright holders?

Among the many strategic questions in this area, has the ability to monitor changed with the advent of digital technologies? Technology has reduced the need for vertical integration since supplier performance can be monitored electronically (Zenger and Hesterly, 1997). It also changes the costs of monitoring internally, allowing for economies of scale that previously did not appear achievable (Baker and Hubbard, 2004). That creates new trade-offs in organizational size and boundaries, but where do these lie in an era in which commons and copyright law remain unsettled?

Relatedly, the advent of low cost data has yielded overwhelming volumes of information to managers, reshuffling the mix of common and private. How do organizations sort through such huge volumes of information? What factors get priority? The change in available information raises questions about the attention and bounded rationality of decision-makers. Increased data challenge cognitive limits, while software, such as data-mining techniques, sifts through data, bringing previously impossible issues to managerial attention.

Common licenses have also altered the boundaries of codified information. Wikipedia and many other sites now act as real-time almanacs of the technical frontier, aggregating enormously decentralized and dispersed pieces of technical progress. Other sites, such as Wikia or Facebook, act as real-time aggregators of popular information and local information. That alters the ease of transferring some information, often across organization boundaries, eliminating competitive advantage based on differential knowledge. On the other hand, it raises the value of different types of unique information, or the ownership of assets for exploiting that information.

Similar reasoning shapes a classical question of organizational strategy, the sources of heterogeneous firm competencies. Common information alters the definition of a rare capability. Just as designing a web page was once a rare skill and is now common, many skills are ubiquitous and no longer can be a significant source of organizational heterogeneity. For example, on Ebay rivals can see each other's pricing strategies with a transparency and clarity that never could be achieved offline. How does that alter non-price behavior, such as the range of products and services offered?

Digitization also has brought down the cost of learning about personal tastes and preferences. Firms have begun to learn to profit from information about consumers, and in a variety of ways, either by targeting advertising or services to certain populations, or segmenting populations to facilitate price discrimination. Some of the information comes to firms through user surfing behavior, with and without the consent of user, and some comes from other channels – namely, some firms assemble profiles of user communities.

Some of this leads to better targeting that benefits users. For example, television and radio commercials must spray their messages over a general area. In contrast, online sites can see generic general information, such as a location, as well as specific history, exactly which stories a user clicks on, and make a reasonable guess as to the user's purpose. Online advertising adjusts accordingly. A user at a car site gets exposure to relevant information (e.g., ads about autos for sale in their geographic area) and not to irrelevant information (e.g., a range of products that do not interest

them at the time). As targeting improves, the potential for less wasteful and more useful information going to consumers is tremendous.

A related set of issues arises in Web 2.0 applications, where a site's privacy policy facilitates social interaction and user-generated content. Already, issues with time-inconsistent privacy policies have begun to arise at sites such as Facebook, which has reset its default privacy settings numerous times in the last few years. What balance between protecting privacy and effective exploitation of digital information should govern such sites? How would different policies alter supplier deployment of crowd-sourcing, user-supplied content, and other Web 2.0 novel businesses? Does the variance in global policy render country-specific policies ineffective, or just effective within narrow geographic boundaries? Do suppliers simply host their businesses in the most cooperative jurisdictions, creating a policy race to the least restrictive settings?

## Rethinking the design of copyright

In its traditional economic role, copyright holders have the ability to hold copyright and commercialize assets, either developing goods for sale (e.g., books, music albums, or DVDs), or licensing their assets to others, who may do the same. That generates a market for expression, and nurtures incentives to create expressions. While that role continues to exist and shape behavior, the era of increasing digitization appears to modify it in numerous ways, raising questions about many aspects of copyright law.

What would be the economic effects of various alternative copyright arrangements and proposals for its redesign? The economics of that question remain open, as recent events have far outstripped economic analysis. The Digital Millennium Copyright Act (DMCA), for example, changed the rules more than a decade ago, introducing a set of new considerations, such as safe harbor rules. So too did new provisions within trade-related aspects of intellectual property rights (TRIPS), a part of the WTO. These statutes have been only partly tested.

The definitions for 'fair use' especially deserve reconsideration. Under US copyright law fair use allows limited use of copyrighted material without requiring permission from the rights holders. The US has taken a legal approach to defining fair use that is almost unique in comparison to other countries. US law provides for the legal, non-licensed citation or incorporation of copyrighted material in another author's work – subject to a balancing test. The test itself weighs whether fair use helps advance knowledge or arts through the addition of something new, and which is not merely derivative. This interpretation of fair use has played an important role in the development of information industries. As is well known, in *Sony v. Universal City Studios* the entire copying of a television program was allowed for private use. In that case, the burden of proof lay with the commercial holder of copyright to demonstrate that the defendant's specific use had harmed the commercial market. Universal did not provide evidence that use of Betamax had negatively impacted their business. As a result, the legal ruling supported what became a large market for private recordings of television broadcasts using VCRs.

In an era of increasing digitization what definitions for fair use are most efficacious and for what public purpose? Already, for example, fair use policies have come under scrutiny by news organizations, which make their information available to search engines. They have come under scrutiny by other developed countries, especially within Europe, who have taken note of the rapid pace of new organizational forms outside of Europe. How would a different set of rules alter the value chain for such services and the incentives to create new arrangements? What economic trade-offs do different legal definitions touch? What aspects of these interpretations remain uncertain and produce challenges for commercial organizations seeking to create new innovative value?

A related line of questions arises in markets for music. Firms engaged in online music must interact with several organizations, including rights holders, which may be writers, performers, and, in some countries, distributors. In addition, many countries have government-sponsored or privately ordered general clearing houses for licensing and distribution of payments. Businesses encounter high transaction costs when compiling nearly complete collections or when renegotiating terms. Firms encounter problems with orphan works and ineffective clearing mechanisms in many countries. The strategic challenges are particularly vexing, favoring large firms in some situations, especially with worldwide distribution, as exemplified by YouTube, whose losses were bankrolled by Google. Yet, it may require nimble and smaller entrepreneurial organizational forms in other situations, such as experiments with licensing arrangements to support new models, as exemplified by Spotify and Pandora.

Other facets of the DMCA raise related questions about the legal definition of infringement. In light of the commoditization of information, how will different infringement rules shape incentives in creative industries? It is not very costly to share pirated goods, so what economic trade-offs shape incentives to create and distribute new works under different infringement definitions? Are creators of digital works liable for linking to illegal content? If so, how does that shape incentives to develop commercial websites for products where piracy is common? What trade-offs shape reach-through rights that apply to derivative works, if any? A range of such questions remain largely unexplored.

## Copyright law in broader context

Copyright law does not operate in an institutional vacuum. It is one of several mechanisms for protecting intellectual property and regulating market behavior. For example, patents allow inventors to protect their novel ideas, while copyright covers its expression. That simple fact underlies a range of strategic questions. Can these be used as complementary tools to protect a digital invention? Or substitutes? Once lessons are discovered and expressed, the costs of relearning discovery can be very low. Copyright and licensing rules can shape the ability of market participants to learn from one another, share that learning, and to put that learning into practice. Do copyright and patents together enhance the commercial transfer of information, or deter it?

A number of challenging issues arise as digitization enables economic transactions on a global scale. Copyright law is not applied to information activities uniformly across the globe. The EU protects the creation of databases under copyright law, for example. The selection and arrangement of content can constitute an author's own intellectual creation, and, therefore, in this regime it deserves copyright protection. In the US, in contrast, there are no database rights in the absence of originality. What consequence does this have for many information-intensive activities and industry? This is an open question.

It is also possible to talk specifically about privately negotiated solutions in the absence of direct government intervention. What factors shape the use of private orderings for settling the division of economic rents from creative activities? For example, the American Society of Composers, Authors and Publishers (ASCAP) represents another example in the music industry. Does that institutional arrangement extend well to digital goods? What changes could be made to facilitate efficient transactions with both entrepreneurial and established firms? How well (or badly) do the equivalent organizations operate worldwide, and how does that hinder development of new digital services?

More broadly, private orderings are one of several responses to settings where multiple parties viably make claims on ownership on expression with market value. When do the claims of multiple

parties create thicket problems in information markets, as found in patents? How difficult is assembly of rights in information markets? Does this matter for those other than collagists and rappers? Would the establishment of a government clearing house resolve most of the salient issues? The present US government-operated copyright clearing house appears to be inadequate for such a task. What would have to be modified to nurture transactions?

As the Google Books case illustrates, multiple rights become particularly difficult to assemble when legal institutions cannot agree on default practices for orphan works (e.g., Google, 2010; Samuelson, 2009). Such settlements also run into the deep-seated worries of some authors that they will lose control over their work or bargaining rights with publishers will be altered. These are rather basic questions which sound economic and strategic analysis could illuminate. It also raises related questions about whether present institutional arrangements have deterred entrepreneurial activity, as firm encounter otherwise unsolvable licensing issues.

## The economics of commons

Experimental forms of copyright, such as the creative commons license, also have begun to play a prominent role in online experimentation and choices over organizational form. Though open source licensing has attracted considerable research (e.g., Lerner and Tirole, 2001, 2002, 2005a, 2005b), there has not yet been a similar scale of research about creative commons. Creative commons licenses help organizations accumulate information in a wide array of new business formats. Flickr is one successful example, having recently passed the milestone of 4 billion photos on its site. This new format for licensing has also generated a range of experiments in developing complementary assets, such as in Wiki formats. Wikipedia has rapidly ascended, becoming the fifth most trafficked website in the US, attracting 400 million visitors a month worldwide. It now has over 20 million articles in over 200 languages.

A new legal form of licensing, sponsored by Creative Commons, has spread extraordinarily fast (Creative Commons, 2010; Lessig, 2006). Founded in only 2001, over 30 million websites use the license today. That begs a range of questions. What is the economic value of this economic activity today? What level of traffic and revenue does it support across the entire web? What rate of return do private actors get from employing this new form of license? What type of organizational form best implements experiments with this form? How about in a specific case, such as Flickr? What factors shape the returns society receives when a non-profit employs this license, such as Wikipedia?

These questions take on added importance and urgency with the success of numerous Web 2.0 initiatives and new media supported by online advertising. The growth of online advertising raises the economic stakes of rules for governing all commercial online media, whether it is news, community-oriented or specialty sites using a common license. This raises a set of questions about the best designs for private and commercial organizations employing such technologies. It also raises a set of issues about the design of such licenses for commercial purposes.

The experience also begs a range of questions about experiments with information sharing in information-intensive activities, such as scientific research. In practice the questions are staggering. A range of scientific endeavors and discovery takes place via simulation, data-mining, and database linkages (at terabyte/teraflop scale). How does the design of commons shape incentives for creation and access costs? What costs arise from granting exclusionary rights over the fruits of discovery?

Scientific commons also facilitate creation and development of large databases (Burk, 2007). Some simply list scientific papers, and make them accessible to scientific communities, while



others provide guidance, links, and ancillary information. How does the design of the commons shape the coordination and governance of such databases?

These types of issues loom large in digital science, particularly the space (e.g., Sloan Digital Sky Survey, 2010) and biological sciences, where scientists would like routines for sharing data and content. Such sharing has a long history, partly as standard practice to replicate existing results, and, more importantly, partly to build on pre-existing knowledge by initiating additional experiments using very precise samples in controlled settings. Some digital biology websites seem to rely on such contracts (e.g. <http://www.genomesonline.org/>; National Institute of Health, 2010).

There are several alternative practices for sharing information. One involves 'standard' contracting modes, namely 'one-click download' style access agreements to digital scientific databases, not compulsory licensees. These types of contracts appear to try to reduce transaction costs (for scientists) by having a central office deal with the copyright/IP issues rather than having individual scientists deal with these issues one-by-one. Two innovative efforts in this direction are, for example, Sage Bionetworks (<http://www.sagebase.org/>) and Science Commons (<http://sciencecommons.org/>), the latter of which is a branch of Creative Commons.

These types of arrangements raise interesting questions. How do the commons shape the governance of user-created databases with scientific merit, such as genealogy tables, or genetic maps to various species? What about accumulations of self-reported experiences from patients, such as those found at sites like PatientsLikeMe.com? What trade-offs shape the design of open access journals or the scientific commons? What does that suggest for best practices for governing those institutions? How should the practices change, if at all, when the scientific research investigates issues that approach commercial goals or pragmatic issues, aka, Pasteur's quadrant? In such settings, what economic costs and benefits govern the conflict between the practices of open science and the practices of commercial trade secrets?

## Intellectual property and experimentation

Recent experience suggests copyright law shapes the direction of market experimentation by shaping the identity of the experimenter. Copyright defines boundaries between legal actions and actions that risk costly legal entanglement. One set of market participants – call them law-abiding risk takers – take one approach to exploratory activity, not deliberately risking falling on the illegal side of the law. Another type of market participants – call them risk-taking hackers – take a different approach to these considerations, less deterred by the legal limits imposed by copyright. In the extreme case, they are individuals who have few assets, and find the financial penalties to be irrelevant. Looking at experimentation this way, it is not a surprise, for example, that many barriers in the last decade were initially broken by small firms or individuals with little to lose by violating copyright, such as Shawn Fanning, who started Napster, and not big and established firms with lawyers who know the legal boundaries in detail and in advance (Ku and Shih, 2002; Landes and Lichtman, 2003; Lemley and Reese, 2004).

How do law-abiding firms act in this setting? Some startups take a clever legal approach, testing legal boundaries in carefully designed steps when they are young and lack assets. For example, YouTube took a novel approach to abiding by legal safe harbors at a time when others were more cautious. Indeed, one of the firms taking the safe approach, Google, continued to lose in direct competition to YouTube, and, rather than continue to compete, eventually bought YouTube.

What else do law-abiders do? Some firms learn by watching, imitating conduct, performing it in a legal manner. Others follow deliberate strategies to cooperate with intermediaries, such as

VCS, who fund firms, such as YouTube, that build an installed base around their risky approach. This is a new role for copyright, and not a well understood one.

One additional new role has emerged for the new forms of copyright, enhancing the sharing of information in technically intensive settings. This is because much information is discovered and created in conjunction with achieving specific economic objectives. For example, wireless equipment markets regularly use open licensing practices to facilitate information dissemination and sharing, which enables new innovative product designs more efficiently and more quickly than was previously possible. Yet, those same equipment makers continue to differentiate along distinct lines, using different branding and channel strategies, for example. Once again, this is a new role, and not well understood.

In many high tech markets copyright is not employed in isolation. It is used in conjunction with patents, trademarks, and trade secrets. Firms explore markets using a range of strategic advantages affiliated with reputation and with effective distribution. It would not be surprising if all forms of intellectual property used alongside copyright, therefore, have taken on a wide variety of new roles. This is a very open topic.

Finally, firms necessarily experiment in the context of platform competition. In electronic book readers, for example, multiple platforms compete to become the predominant content provider to users. One platform, led prominently by Amazon, subsidizes readers, while hoping to make the value on margins in content sales. Another platform, led by Apple, makes plenty of profits on hardware sales, hoping to keep the price of content lower. Copyright holders, meanwhile, make investments in anticipation of each platform's success today and in the future. No sane analyst disengages the analysis of competition in the present from the strategic investment made by each platform leader and multiple participants. Price alone hardly determines the outcome while all firms experiment with creating value.

## Measuring digitization

A range of work has examined fundamental work on information types, measurement, and valuation, and stresses the potential and actual mismeasurement of IT inputs in understanding and measuring firm productivity (e.g., Brynjolfsson and MacAfee, 2011). Much of this work stresses organizational-level mechanisms that lead to mismeasurement, such as investments in business process engineering, which manifest as organizational goodwill and non-tangible value. In addition, a range of research into user-generated innovations suggests these innovations account for a large fraction of growth at firms, raising a range of measurement issues related to identifying the sources of innovation (e.g., Von Hippel, 2001; Von Hippel et al., forthcoming). All of this work suggests managerial choice over optimal organizational form must change in response to digitization.

While the managerial issues at the organization level are challenging, at least they have received attention (see, e.g., Stern and Zhang, 2010). Measuring digitization is, alas, an underdeveloped field at the macroeconomic level. It is woefully small in comparison to the size of the phenomenon, and in comparison to other parts of the US economy. More concretely, while a large and established government apparatus measures GDP, namely, the flow of pecuniary goods and services, nothing of comparable size or polish directs attention at digitization.

The symptoms of underdevelopment are apparent in many aspects of US policy for public goods that support the diffusion of digitization. Here is one recent example: the recent National Broadband Plan (FCC, 2010) contains information from only a few statistical studies authored by neutral third parties, such as academics. The 360-page plan also contains very little in the way of



statistical economic forecasts for the consequences of various policy options. The absence of statistical information was not due to a lack of homework by the staff (who cited virtually every statistical study written in the last decade). Rather, it reflects the sorry state of economic research about digital infrastructure and many aspects of digitization more broadly. It reflects the simple lack of an organized community of researchers with a large and well developed body of knowledge (Flamm et al., 2007).

Such flying blind would be unthinkable for policy in other infrastructure industries. Every Congressional bill that shapes transportation infrastructure, for example, comes with a forecast for the size of growth it will produce and the number of jobs it will create. Nothing comparable can be done for any bill designed to shape information infrastructure because there is not even a simple measure of the size of the digital economy, or any apparatus in place to forecast the incremental growth resulting from a change in the underlying infrastructure (Greenstein, 2012).

In short, the US government can measure cement better than it can measure bits.

This situation resulted from a long history. Many initiatives for measuring the digital economy were begun in the 1990s – at the BEA, the Census, the BLS, and the NTIA. In the last decade a few survived (e.g., a survey about the labor market for the IT workforce, and a broad estimate of the size of electronic commerce, called E-Stats), and many did not (e.g., household and business surveys of the extent of broadband supply, adoption, and use). There was no large outcry when government funding was cut this decade.

The inadequacies at the public level are not matched by similar inadequacies at private firms. In the last decade a range of firms – such as Comscore, Alexa, or Neilsen – have established metrics for tracking online behavior. To be sure, not all the relevant issues have reached resolution. The effectiveness of advertising online remains an open question, and the answer varies with the method for measuring the click-through rate and the impression. The effectiveness of targeted advertising also varies with the match with effectiveness of measuring the demographics of users in real time. The tools for doing still change frequently, but frame some questions. No standards have yet emerged for measuring data traffic volumes at households, as well, which is a simple barrier to establishing standardized billing practices for incremental usage.

More generally, standard GDP measurement approaches are not oriented toward the information economy except in so far as that part of economy mimics the existing pecuniary economy (e.g., Rosston et al., 2010). GDP captures creation of new revenue and decline of existing revenue, such as new ad revenue, new Internet access revenue, less newspaper revenue, and so on. Existing processes do not measure well many important consequences from digitization. As with any good with a rapidly declining price, standard approaches will not record the gains in consumer surplus. Standard approaches also do not measure the gains to parties who buy and sell with less effort, or the gains to sellers and buyers who come closer to matching their preferences for a differentiated good. More generally, standard approaches do not focus on growth-externalities, namely, how the change in costs or capabilities of one good alters other markets not directly involved in transaction. There also are no standard approaches for services prices at zero.

Numerous measurement questions arise that would benefit from sensible microeconomic analysis. What rate of return does society gain from better search? What is the appropriate economic approach to measure the private and social on investments in new information portals, such as Wikipedia? Which margin of economic behavior do these new services most change? These cannot be addressed without an appropriate measurement framework.

Public discourse also could use a range of innovative institutions to contribute to measurement efforts. What type of publicly accessible databanks would contribute to research efforts? What

standards for data in this area would contribute to building further research? What data remains locked in proprietary vaults, but could be unlocked by a standard process for protecting privacy while informing research? What is not being systematically measured but could be?

There is an irony here somewhere. In an industry that is all about information, shouldn't the information economy be *more* measureable?

## Moving forward with an agenda

Digitization enabled outcomes previously not possible because it reduced the cost of performing existing activities, and enabled development of new services and processes that did not exist – and could not have existed. That opportunity generated dramatic resource reallocation, and restructuring of routines, market relationships, patterns of the flow of goods and services. It also raises a plethora of policy questions.

To summarize, we foresee many opportunities in the following areas:

- *Understanding changes in the composition of organizations:* Increasing digitization initiates significant shifts in strategies for the organizational form for addressing market opportunities.
- *Charting changes in the source of competitive advantage:* If knowledge is a resource, then increasing digitization alters the value of knowledge assets, reducing the value of some of the legal protections, raising the value of new strategies to deploy information in innovative ways.
- *Understanding changes in firm/user boundaries:* Commercial actors have the ability to learn an enormous range of details about consumer conduct, both in their online behavior and offline. What economic factors shape privacy in the new economics of digitization?
- *Rethinking the design of copyright:* If the digitization of information has dramatically changed the form of expression, its delivery, and its use, then, perhaps, so too the policies for governing its ownership may have changed its role.
- *Redesigning incentives for innovation and creativity:* In broad context copyright law is one of several mechanisms for protecting intellectual property and regulating market behavior.

## Acknowledgements

We thank Michael Zhang for excellent research assistance, as well as participants in the Economics of Copyright and Digitization Conference of April, 2010. We would also like to thank Joel Baum and the editorial board for encouraging us to reorganize our thoughts into this essay. All errors are our own.

## Funding

The authors are co-directors of the Economics of Digitization program, an initiative of the Productivity, Innovation and Entrepreneurship Program at the National Bureau of Economic Research. This initiative is funded by the Sloan Foundation.

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### Author biographies

**Shane Greenstein** is a member of the Management and Strategy Department at the Kellogg School of Management, Northwestern University. He is the Kellogg Chair of Information Technology. He is a leading researcher in the business economics of computing, communications, and Internet infrastructure. Many of these essays and other commentary are on his blogs called *virulent word of mouse* and *digitopoly*. He is presently writing a history of the development of the commercial Internet in the United States. Greenstein is co-director of the Economics of Digitization at the National Bureau of Economic Research, and editor of the business/economics section of the *Communications of the ACM*. He was administrative head of his department from 2002 to 2005. Greenstein received his BA from University of California at Berkeley in 1983, and his PhD from Stanford University in 1989, both in economics. He also continues to receive a daily education in life from his wife and children. *Address*: Kellogg School of Management, Northwestern University, WA 60208, USA. [email: greenstein@kellogg.northwestern.edu]

**Josh Lerner** is the Jacob H. Schiff Professor of Investment Banking at Harvard Business School, with a joint appointment in the Finance and the Entrepreneurial Management Areas. He graduated from Yale College with a Special Divisional Major that combined physics with the history of technology and earned a PhD from Harvard's Economics Department. Much of his research focuses on the structure and role of venture capital and private equity organizations. (This research is collected in three books, *The Venture Capital Cycle*, *The Money of Invention*, and *Boulevard of Broken Dreams*.) He also examines policies towards innovation, and how they impact firm strategies in high technology industries. (The research is discussed in the books *Innovation and Its Discontents*, *The Comingled Code*, and the forthcoming *Architecture of Innovation*.) He co-directs the National Bureau of Economic Research's Productivity, Research, and Innovation Program and founded and runs the Private Capital Research Institute, a non-profit devoted to encouraging data access to and research about venture capital and private equity. He is the winner of the Swedish government's 2010 Global Entrepreneurship Research Award. *Address*: Rock Center for Entrepreneurship, Room 214, Harvard Business School, Boston, MA 02163, USA. [email: jlerner@hbs.edu]

**Scott Stern** is School of Management Distinguished Professor and Chair of the Technological Innovation, Entrepreneurship and Strategic Management Group at the Sloan School at MIT. Stern explores how innovation differs from more traditional economic goods, and the implications of these differences for entrepreneurship, business strategy, and public policy. His research focuses on the drivers of entrepreneurial strategy, the determinants of R&D productivity in both the public and private sector, and the role of incentives and organizational design on innovation. Stern received his PhD from Stanford University, started his career at MIT from 1995 to 2001, and was on the faculty of the Kellogg School of Management from 2001 to 2010. Stern is the director of the Innovation Policy Working Group at the National Bureau of Economic Research. Stern is a Fellow of the Strategy Research Initiative and, in 2005, was awarded the Kauffman Prize Medal for Distinguished Research in Entrepreneurship. *Address*: Sloan School of Management, Massachusetts Institute of Technology, Cambridge, MA 02142, USA. [email: sstern@mit.edu]