

14: Digital Firm Formation (Original in committee handouts)

Oliver R. Goodenough*

INTRODUCTION AND ACTION STEPS

Firm formation is a critical element in promoting and sustaining economic growth. Startups help drive economies forward. Increasing the ease of creating startups, and the universe of players with whom a startup can be formed, will necessarily contribute to economic progress. Digital communication is increasing the scope and ease of many forms of human interaction. We are using the Internet, cell phones, and such blended devices as the iPad to keep track of friends, date, make restaurant reservations, pursue education and commerce, and file our taxes. The boost in efficiency and reach resulting from the digitization of these activities is significant—sometimes even revolutionary.

The digital revolution is affecting law as well, and digital firm formation is now a possibility. As creating and operating a firm through a medium like the web becomes easier, more completely integrated, and more widely available, it too will create a significant boost in the possibilities for establishing start-up companies. We can accelerate this process and capture the benefits sooner by pushing forward on a series of action steps, working to:

- Recognize the potential for digitization to bring speed and efficiency to many realms of law and their application to human needs, with a particular focus on the law of company formation and operation;
- Pass legislation and reform regulations so as to authorize the formation and operation of digital companies and to recognize the character and treatment of algorithmic ownership interests;
- Develop platforms that integrate software, communication systems, and law so as to allow users to capture the potential created by these legal changes; and
- Educate entrepreneurs and their legal advisors in law about these changes and about how to use them to create reliable legal structures for business with greater efficiency, reduced friction, and increased client autonomy.

* Oliver R. Goodenough, a fellow at The Berkman Center for Internet and Society at Harvard Law School, a Professor of Law at the Vermont Law School, and an Adjunct Professor at Thayer School of Engineering at Dartmouth College, is an expert in the law of business, including corporations, entertainment law, intellectual property, securities law, and trademarks.

As we face a period of predicted slow economic growth following the sharp downturn of 2008-9, cultivating institutions that better support innovation and entrepreneurship is a priority for the United States and the world.

In laying out the case for digital firm formation, this chapter will first explore the importance of legal institutions for economic activity and the potential impact of digitization on the creation of such institutions. It will then describe more fully the four action steps set out above, reporting on progress to date and suggesting implementation strategies that will help to accelerate the acceptance and application of digital firms. Finally, it will return to a wider assessment of the benefits that will flow from digital company laws, benefits that go well beyond the immediate goals of reducing costs and boosting efficiency.

This chapter focuses largely on legal developments in the United States. This choice reflects limitations of scope and authorial expertise, and not any inherent lack of interest in laws and events outside the United States. That said, the digital corporation and LLC amendments passed in Vermont still stand out as leading steps in this field, and U.S. law is illustrative of the general points to be made. Any gains that might come from an extended comparative treatment would be limited for the purposes of the arguments set out here.

BACKGROUND 1: FIRM FORMATION MATTERS FOR GROWTH

Why is firm formation particularly important for sustained growth? Economic progress can be usefully differentiated between “catch-up” growth and innovation-led growth. Catchup growth involves the adoption of existing models of technology, production, and distribution by less developed countries. As contemporary examples like China and India demonstrate, it is an important part of the story for increasing prosperity and wellbeing around the globe. But it is also essentially a finite part of that story. When everyone catches up, this kind of development levels off and stagnation can set in.

Innovation-led growth, by contrast, keeps expanding the frontier of the possibilities of prosperity. Innovation can come in new, more competent technological processes or in better institutions for organizing and financing economic activity. This type of growth is the hope of the current leaders in the world economy, such as the United States, who set the standards to which catchup

economies aspire, and in future years it will be the source of solutions to such challenges as sustaining and growing prosperity in a resource-constrained world.

Catch-up growth is essentially imitative. It does not need the spark of new discovery, just a good eye for what is working for somebody else and the willingness to move from locally established practice and adopt the observed improvements. These attributes can often be accommodated by existing firms, and so catch-up growth is less dependent on new firm formation. Innovative growth, on the other hand, is inherently a matter of finding new approaches to put new ideas to work. Existing firms can be a source of innovation, but the full vision of creative destruction in a growing economy requires a constant stream of new enterprises pushing the boundaries outward. The ease with which new startups can be established within an economy has a direct impact on its potential for growth.

Baumol et al. recognize this, putting firm formation among the first elements on their list of necessary factors for an innovative system: “[I]n the successful entrepreneurial economy, it must be relatively easy to form a business, without expensive and timeconsuming bureaucratic red tape.”¹ Summing up the problem succinctly, they declare, “If entrepreneurship is about starting and growing a commercial enterprise... then it must be easy and inexpensive to do.”² The unspoken villain of the red-tape nightmare is the legal system. While firms can be—and often are—founded on handshakes, most advanced economies offer legally supported forms of expectation and commitment through which a more formal, explicit, and enforceable arrangement can be made. The availability of these private legal institutions is important for growth. The trick, of course, is to make the barriers to establishment low in terms of complication, time, and expense—goals the digital world can often help to accomplish.

BACKGROUND 2: LEGAL INSTITUTIONS MATTER FOR FIRMS

The importance of legal institutions in economic growth is widely recognized. As Jones and Romer remark: “There is very broad

¹ William J. Baumol, Robert E. Litan, and Carl J. Schramm, *Good Capitalism, Bad Capitalism, and the Economics of Growth and Prosperity* (New Haven, CT: Yale University Press, 2007).

² *Ibid.*

agreement that differences in institutions must be the fundamental source of the wide differences in growth rates observed for

countries at low levels of income and for the low income and TFP [total factor productivity] levels themselves.”³

Similarly, when Baumol et al. (2007) describe the preconditions for a successful entrepreneurial economy, something they characterize as “a well oiled economic growth machine,” they spell out four necessary elements, *all* of which involve institutions. The first two—firm formation and the law of contract and property—are private law spaces within which participants get to fashion their own collaborative structures. The second two—government policies and regulations—are public institutional domains.⁴ Clearly, legal institutions matter for growth, and private legal institutions—and business organization laws in particular—can matter as much as the society-wide institutions of macroeconomic policy. How does meeting this need help innovation?

In the public imagination, new inventions are often the product of a lonely, innovative genius, toiling away in isolation. If the inventor is successful, and the critical light-bulb moment occurs, then the idea generator magically morphs into an expert manager of the processes of commercialization. While this is sometimes the case, the myth of the lone inventor/entrepreneur is more often just that—a myth. Innovations are seldom solitary achievements, and particularly not in these times of technological complexity, when mashing together a diversity of skills and knowledge is often the source of new knowledge. In *The Rational Optimist: How Prosperity Evolves*, Matt Ridley argues that innovation occurs when “ideas have sex,” a process that is likely to require more than one mind as the source of those ideas.⁵

Collaboration is even more important for taking an idea into production and bringing it to market. Here again, the skill sets involved are likely to be only partially represented in any one person, and collaboration will increase the chances of success. Furthermore, skills alone are frequently not enough—capital is generally a requirement, and a requirement that must often be sought from sources beyond the coalition of idea and management providers so far assembled. As it labors to bring ideas to

3 Charles I. Jones and Paul M. Romer, “The New Kaldor Facts: Ideas, Institutions, Population, and

Human Capital,” *American Economic Journal: Macroeconomics* 2, no. 1 (2010): 224-45.

4 Baumol et al., *Good Capitalism, Bad Capitalism*.

5 Matt Ridley, *The Rational Optimist: How Prosperity Evolves* (New York: Harper Collins, 2010).

practice, entrepreneurship often creates a team, bringing together capital, technical expertise, management acumen, and expertise in dealing with legal and governmental requirements. Whether it is two people or ten, the team will generally only commit the required resources of time, talent and money against a reasonably reliable expectation of a share in the hoped-for gains that the innovative activity can produce.

The challenge of capturing and sharing the gains that arise from productive cooperation and collaboration is a general one, with application well beyond the context of human economic activity. The potential problems come in several variants, ranging from active deceit, defection, and predation to less aggressive but equally destructive free-riding. In their classic biological treatment, *The Major Transitions in Evolution*, John Maynard Smith and Eors Szathmary argue that solutions to just such problems of benefit capture and sharing underlie several of the significant changes of efficiency and scale that punctuate the path from primordial chemistry of early life to the complex biology and social structures of modern humanity.⁶ Entrepreneurial collaboration can be viewed as a powerful next step in this story of transitions. Game theory provides insights into many of these challenges (e.g. Gintis 2000).⁷ The subdiscipline of mechanism design has as its project the creation of institutional mechanisms that match sacrifice and reward with enough reliability to enable collaboration to occur, particularly in the sphere of information disclosure (e.g. Parkes 2001; Goodenough 2008).⁸ At the level of real-world application, we might call the process of redenominating the entrepreneurial game-form so as to provide good expectations for the players “institutional design.” The rule of law enables many of the best solutions to the challenges of institutional design.

Law—particularly property law—starts by providing a bulwark against the expropriation of the benefit by those outside the team. Whether sneak thieves, protection artists, imitative competitors, or the law giver itself, there are many players who will happily take slices of the gains away from the team. Physical and intellectual

6 John Maynard Smith, and Eors Szathmary, *The Major Transitions in Evolution* (Oxford: Oxford University Press, 1995).

7 Herbert Gintis, *Game Theory Evolving* (Princeton, NJ: Princeton University Press, 2000).

8 David C. Parkes, *Iterative Combinatorial Auctions: Achieving Economic and Computational Efficiency*. (PhD diss., University of Pennsylvania, 2001), accessed November 15, 2010, <http://www.eecs.harvard.edu/~parkes/diss.html>; Oliver R. Goodenough, “Values, Mechanism Design, and Fairness,” in *Moral Markets: The Critical Role of Values in the Economy*, ed. Paul J. Zak (Princeton, NJ: Princeton University Press, 2008), 228-255.

property regimes can protect against these external predators, and property rights are widely recognized as an important predicate to growth (e.g. de Soto 2000; Baumol et al. 2007).⁹ But what about the team itself? How are its players given assurance of future participation and reward among themselves as the entrepreneurial enterprise goes forward? Contracts play an important role, particularly if the contribution is limited in scope and the reward is relatively well defined.

When the contributions to the team and the expectations of reward are more open-ended, however, then the relationship is not easy to define in a one-off contract. The incompleteness of the contract with respect to specific outcomes can be managed by conceptualizing the arrangement as joint ownership of the project with other major, ongoing contributors, a more loosely defined arrangement through which the contingent flows of success and failure can be accounted and allocated. In the U.S. context, such approaches are structured through the law of business organizations. This area of law takes pieces from property, contract, fiduciary duties, even government, and while there have been determined efforts by some to restate it all in one or another of these categories, it is also worth thinking of the law of the firm as a separate category.

Part of the genius of business organization law, as it has evolved in most developed economies, is the way it provides solutions to a whole range of the dilemmas faced in a free-market, entrepreneurial economy. One set of much-studied attributes cluster around the relations of the firm, its assets, and its members to the outside world, and in particular around questions of legal personhood, limited liability, asset sequestration, and entity shielding (e.g., Hansmann et al. 2006).¹⁰ Another cluster looks at the relations among firm participants, and in particular questions of governance in larger firms with widespread public participation (e.g., Anabtawi and Stout 2008).¹¹ A third cluster focuses on the

⁹ Hernando de Soto, *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else* (New York: Basic Books, 2000); Baumol et al., *Good Capitalism, Bad Capitalism*.

¹⁰ Henry Hansmann, Reinier Kraakman, and Richard Squire, "Law and the Rise of the Firm," *Harvard Law Review* 119, no. 5 (2006): 1333-1403.

¹¹ Iman Anabtawi and Lynn A. Stout, "Fiduciary Duties for Activist Shareholders," *Stanford Law Review* 60, no. 5 (2008): 1255-1308.

increasing “contractualization” of business entity forms, in which there is a move from standardized legal requirements in governance rules to a world of permissive default settings with a wide range of acceptable variation established by contract among the participants (e.g. Hansmann et al. 2005; Hansmann and Kraakman 2010; but see Hansmann 2006).¹² Each of these identifies important issues, which affect firm governance and growth at various points over the life cycle of the business.

At the point of formation, establishing rights and duties among the team becomes particularly salient. We need to create reliable structures within which the collaborations of innovation and entrepreneurship can take place, structures that will motivate not just correct treatment but enthusiastic striving toward the common goal. In designing such structures, biology suggests that outcome interdependency plays an important role. Early in the development of terrestrial life, the loosely tied grouping of mutually beneficial catalytic chemistry called the “hypercycle” changed to a powerhouse of cooperative interaction and evolution called the “cell” once it was wrapped in a membrane. The membrane boundary contained the benefits of the interaction of the constituent parts and linked their outcome, for good or ill, in a mutual fate.¹³ Tying people, and their outcomes, together in the legal structure of a firm has this same potential for driving productive collaboration.

By facilitating a made-for-the-purpose team to create new ideas and bring them to market, it is no surprise that the ability to form a legally grounded business organization is a key factor in promoting innovative growth. The development of successful, growth-oriented capitalism is at least partly a story of the development of better private business institutions within which firms

¹² Henry Hansmann, “The New Business Entities in Evolutionary Perspective.” *University of Illinois Law Review*, 2005, no. 1 (2005): 5-14; Henry Hansmann and Reinier Kraakman, “The Contractualization of Organizational Law,” in *Festschrift für Klaus J. Hopt zum 70. Geburtstag am*

24. August 2010 *Unternehmen, Markt und Verantwortung*, edited by Stefan Grundmann et al. (Berlin: De Gruyter, 2010), 747–764; Hansmann, “Corporation and Contract,” *American Law and Economics Review* 8, no. 1 (2006): 1-19.

¹³ Smith and Szathmary, *The Major Transitions in Evolution*.

can be structured. In the United States, we often take a welldeveloped business organization law for granted. But its significance was better recognized when the developments were new. In 1911, Nicholas Murray Butler, then president of Columbia University, gave a frequently quoted description of the importance of business organization law for growth:

I weigh my words when I say that in my judgment the limited liability corporation is the greatest single discovery of modern times.... Even steam and electricity are far less important than the limited liability corporation, and they would be reduced to comparative impotence without it.¹⁴

The history of business organization law has been marked by several steps that have made formation easier and the resulting entity better tailored to the needs of entrepreneurial startups. In the nineteenth century, for instance, general incorporation laws, which require a simple filing to create a company, replaced the expensive and time-consuming requirement of a specific legislative act for the grant of a corporate charter. More recently, close corporation statutes, better partnership laws, and the development of the LLC (limited liability company) and the LLP (limited liability partnership) have extended the contractualization approach, mentioned above, so that by the late twentieth century the design of relations between participants in a firm was nearly wide open, at least as a matter of business organization law, and “private corporate law” became a possibility.¹⁵ Each of these developments has coincided with burst of entrepreneurial activity.

But that old villain, “red tape,” is still lurking here in the legal weeds. Whether in the area of firm formation or elsewhere, access to legal processes and assurances can be expensive and time-consuming.

¹⁴ Nicholas Murray Butler, “Address at the 143rd Annual Banquet of the Chamber of Commerce of the State of New York, November 16, 1911.” Quoted in William Meade Fletcher, *Cyclopedia of the Law of Private Corporations* 1, s. 21 (Chicago: Callaghan and Company, 1917), 43.

¹⁵ Gillian K. Hadfield and Eric Talley, “On Public versus Private Provision of Corporate Law,” *Journal of Law, Economics and Organization* 22, no. 2 (2006): 414-441.

This is true both for large, established businesses and for shallow-pocketed graduate students with a killer idea. Part of the solution is the digitization of law.¹⁶ Developments in software, the Internet, cloud computing, and mobile devices are revolutionizing many domains of commercial life, from production to sales, causing a cascade of disruptive progress. This cascade is beginning to affect the creation and operation of institutions in the financial and business worlds. We are at the early stages of an institutional change that has the potential to be equally empowering for innovative business: digital business laws that permit the formation and operation of “virtual companies.” While the process is in some ways inevitable, we can improve the outcomes and bring them forward in time by taking four action steps as a society.

ACTION STEP 1: RECOGNIZING THE POTENTIAL FOR DIGITIZED LEGAL ACCESS

Computing, the Internet, and related digital technologies are changing how we conduct our lives, and doing so at a rapidly increasing rate. Digital communication, via the Internet, cell phone text messaging, and other emerging technologies, is reshaping many aspects of life. In a few short years, the relatively simple medium of e-mail has become the primary avenue for text-based communication—a position already under challenge from texting on cell phones and other mobile devices and exchanges posted within Facebook.com or other sites of shared social contact.

Digital processes are making many economic activities cheaper and easier as well. In the commercial world, transactions as diverse as purchasing books, energy trading, and selling the contents of one’s garage are safely and routinely handled via the web. Internet banking allows digital control over transactions with a high need for security—and it all works remarkably well. This revolution ranks with steam power, telegraph and telephone, rail transport, electricity, and the handful of other complete “game changers” in economic history.

¹⁶ Richard Susskind, *The End of Lawyers? Rethinking the Nature of Legal Services* (Oxford: Oxford University Press, 2008); Brock Rutter and Oliver Goodenough, “Digital Lawyering in the Law School Curriculum,” (paper, in preparation, 2010).

Law is beginning to feel the winds of change. Many aspects of legal services will be affected—including the delivery of previously “bespoke” services in cheaper, and more democratically available, online forms.¹⁷ Businesses like LegalZoom.com and MyCorporation.com have already sprung up, offering inexpensive—even free—chartering of corporations and LLCs via an Internet interface. The banner on MyCorporation.com reads “entrepreneurs welcome,” and so they are. But the end product of these twenty-first century marketing efforts is still a nineteenth century artifact—a paper-based corporate charter, in a paperbased minute book, with paper-based bylaws and operating agreements. These sites are nowhere near to capturing the full potential of digitization for enabling firm formation and operation. In a sense, MyCorporation.com, like e-mail, is already old news. We are on the edge of the next big step: fully digitized business organizations.

ACTION STEP 2: CHANGES TO LAWS AND REGULATIONS

In order for digital business organizations to come about, certain legal groundwork must first be laid. Under U.S. law, business organizations with limited liability and legal personification must receive a government charter of some kind and must fit within a set of enabling rules, typically granted under state law. While these rules have become increasingly flexible in recent years, most still contemplate a world of paper and in-person interaction, supplemented by the postal service, telephone, and fax. Changes in state law are then first steps in creating the necessary legal landscape for digital firm formation and operation.

The default context for deliberative actions by shareholders, boards of directors, and formal committees is a meeting, with due notice given and the opportunity for participation by all (e.g., for directors, Model Business Corporation Act § 8.20 and 8.22; Delaware General Corporation Law §141). Relaxing this model somewhat, most, and perhaps all, states allow attendance by telephone conference call (e.g., for directors, Model Business Corporation Act § 8.20(b); Delaware General Corporation Law §141 (i)). Most also offer the possibility of an action in writing in lieu of a meeting, although most require physical signatures and unanimity, at least for directors (e.g., Model Business Corporation Act § 8.21; Delaware General Corporation Law §141 (f)). Some, like Delaware, now authorize consent to be given to this kind of action through electronic transmission, and permit keeping

¹⁷ Susskind, *The End of Lawyers?* ; see generally Gillian K. Hadfield, “Law for a Flat World: LegalInfrastructure and the New Economy,” (paper, 2010) in *The Selected Works of Gillian K Hadfield*, <http://works.bepress.com/ghadfield/35>, accessed November 15, 2010.

board minutes in digital form (Delaware General Corporation Law §141 (f)).

On the formation step, some states have already gone beyond LegalZoom and MyCorporation.com. Rather than working through such an intermediary, these states allow the direct online formation of a corporation or limited liability company, using the government website to fill out the forms and charging the filing fees by credit card (e.g. Florida at <https://efile.sunbiz.org/onlmenu.html>). This relaxation is useful, but it is just the beginning. The full payoffs of convenience and new possibilities grow from allowing all of the formal, legally mandated relations among owners, managers, and their agents to be conducted through digital means as well. For instance, the text-based rules set out in bylaws can just as easily be set out in a computer program that would direct notices, host meetings, count votes, and authorize transactions with banks and other financial depositories. In addition to meetings held in person, via phone, or through written action, allowed by traditional corporate law, the statutes should be modified to expressly authorize meeting management software that would create a kind of super chat room through which corporate directors and LLC managers could discuss issues and arrive at decisions, all managed by the agreed bylaw software. What these steps need is statutory authorization.

In 2008, Vermont passed the first law explicitly designed to foster the development of fully digitized business organizations. The law established the opportunity for businesses to fully integrate their legal structure with the opportunities of the Internet and other forms of digital communication. The bill (H.888) containing these changes, as passed by into law, is available in full at: <http://www.leg.state.vt.us/docs/legdoc.cfm?URL=/docs/2008/acts/ACT190.HTM>.

The Vermont law aimed at three basic steps—steps that should be part of any enabling legislation in other jurisdictions looking to authorize digital business organizations. As a first step, it authorized a fully digital formation process for corporations and LLCs.

As mentioned above, Vermont is not alone in this—other states have authorized this as well, and LegalZoom and MyCorporation provide a mediated interface that gives the equivalent experience for the others. It is nonetheless a necessary part of the full package. (Ironically, implementation in the Vermont secretary of state's office has lagged a bit, and intermediation is, for the moment, still a useful resource.) The second step is the authorization

of a wide range of digital communication as ways in which the formal actions of the corporation or LLC may be taken. While other states, such as Delaware, have made steps in this direction, the Vermont law broke new ground in the scope of its authorization. The final step is the authorization to use software as the original means for setting out the agreements and bylaws that govern the actions of the members and managers of LLCs and of the officers, shareholders, and directors of corporations.

This last authorization has two important effects. First, when coupled with the other steps, it means that the formalities associated with running a company can be completely migrated to a digital environment, thus allowing the formation of companies where digital communication is the only medium of interaction for its participants. Second, it allows the execution of the formalities to be fully integrated with the software that describes them. A single software package can describe the procedures for governing contributions, distributions, and voting, can supervise its implementation, and can keep a record of the process and its results.

Thanks to Vermont, the legal platform for digital corporations and LLCs has been established—and in 2010 Vermont added nonprofit corporations to the list as well. Other jurisdictions are likely to follow suit in due course.

In addition to these enabling statutes, there are constraints under other applicable laws, such as the securities regulations (e.g., Bradley 2007).¹⁸ While small digital companies, with only a few directly involved participants, are likely to fall easily into traditional SEC exemptions for active owners and private offerings (e.g. Regulation D under the Securities Act of 1933), realizing the full potential when the new forms involve many players may require rule changes. And some developments will challenge the very assumptions of existing regulation. Consider, for instance, the digital or algorithmic security, where the master description of the rights of sharing, voting, and other characteristics of equity participation are denominated and indeed calculated entirely through an algorithm embedded solely in software. Such a beast is possible under the new Vermont laws; as examples emerge, our regulatory structures will need to change to accommodate their characteristics.

¹⁸ Caroline Bradley, “Gaming the System: Virtual Worlds and the Securities Markets” (paper, 2007), accessed November 15, 2010, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1022441 and http://works.bepress.com/cgi/viewcontent.cgi?article=1000&context=caroline_bradley.

ACTION STEP 3: DEVELOPING THE PLATFORM FOR DIGITAL ENTERPRISE

Law changes may permit digital firms, but they don't bring them into being. The other necessary ingredient for making virtual companies a real possibility is a technical platform that can allow the migration of a company's institutional rules and formal interactions into the digital domain. What is a "platform"? This muchused word can refer to (1) a type of processor and/or other hardware, (2) software with a wide range of applicability such as an operating system, or (3) the combination of hardware and software creating the potential for an expansive set of uses. (e.g. <http://www.linfo.org/platform.html>). The iPhone is usefully described as a platform, combining hardware and applications. The web itself can be considered a platform, as can sub-universes within the web such as Facebook.com. In the digital firm context, we are looking at an example of a digitized governance platform, 19 a technical combination tailored specifically to the institutional needs of business collaboration.

There are several design approaches that can be taken in building a platform for automating the formation and formalities of a business organization. These range from (1) a fully contained, "cradle to grave" software package that completely automates the formalities of forming, running, and winding up a targeted form of business organization through (2) purpose-designed software that performs only part of the process, such as a digital minute book, and on to (3) an assembly of "off the shelf" components from tool kits like Google Wave that performs some or all of the necessary tasks.

Developing a model "cradle to grave" package for a simple LLC under the Vermont statute has been a project at Harvard's Law Lab, where I am a codirector. A description of our process can provide guidance to others embarking on a similar project. The first step involved establishing goals for the scope, flexibility, and universality of the platform. Going straight for the development of a fully flexible, general-purpose governance platform was a possibility. Such a structure would require the modeling and programming of a significant number of processes and requirements that are common to business organizations generally. The Law Lab list includes such features as robust identity measures, contribution metrics, reputation systems, benefit assignment rules,

19 See John H. Clippinger, "Digital Innovation in Governance: New Rules for Sharing and Protecting Private Information," this volume, chapter 16.

work and information communication channels, decision-making algorithms, exclusivity and loyalty provisions, and transfer and expulsion rules.²⁰ Developing a platform that would permit “dial setting” flexibility across these many domains was initially attractive; it remains a targeted goal for the Law Lab and will be an important step in the enabling some of the more “exotic” entrepreneurial venture possibilities discussed below.

On reflection, however, a more narrow focus was chosen for the first effort, targeting the typical small founder group as the first use case. If the software was to be truly aimed at requiring little, if any, lawyer intervention as clients put it to use, it needed to be designed around widely applicable default approaches, rather than heavily tailorable flexibility. Thus, the initial platform becomes a web-based application that instantiates rules for a start-up LLC aimed at a small group of founding members, all of them active in the business. While flexibility is preserved on contributions and profit sharing, we made the decision to mandate unanimity as the basis for most decision making. In small, cooperative groups, unanimity provides protection against oppression by a majority and allows full psychological buy in.

The platform involves a purpose-built software package, allowing a high degree of control over the result and greater protection against malicious interference as it gets rolled out for commercial application in a sponsored environment. At this writing, our fully developed prototype is available for demonstration at digitalllc.org. The first phase of its commercial rollout is in active development. It will be a “white label” service, available for offer in a customized version by such interested companies as law firms, banks, and other service providers to start-up companies.

A less ambitious step is the purpose-built creation of tools for parts of the digital company’s activities. Managing and keeping a record of meetings and other decision-making forums is a source of annoyance in almost all companies, and a source of low-quality work for lawyers cast in the role of corporate secretaries. Internet-savvy groups such as the World Wide Web Consortium (W3C) are creating their own solutions to these problems, and a commercial version is likely to emerge soon.

An alternative on the other end of the spectrum from the purpose-built approach is to make use of off-the-shelf functionalities developed by others. The emerging world of social interaction

²⁰ Ibid.

tools, such as Google Wave, has elements that can be incorporated into an institutional governance platform. Google tells you that, “A wave is a live, shared space on the web where people can discuss and work together using richly formatted text, photos, videos, maps, and more.” Tools include voting possibilities—many of the elements are there, but not yet the whole package.

The development and proliferation of law-related software solutions like these will be accelerated by the establishment of an “app store” for legal software. As inventors and collaborative groups find their own solutions, an established marketplace for their advertisement and sale will help move the best of them from a local convenience to an industry changer. Such an app store would, of course, have an impact on the development of digitized legal services across a wide range of domains.

ACTION STEP 4: EDUCATING LAWYERS AND CLIENTS INTO A NEW MODE OF INTERACTION

Our final recommended action step grows out of a question with Shakespearian overtones: where will this leave all the lawyers? Why kill them all, as Dick the Butcher advocates in *Henry VI, Part 2*, when making them irrelevant, as Richard Susskind predicts in *The End of Lawyers*, will work just as well? As a professional teacher of lawyers, I do not think we are really at the end of lawyers in the formation process, but I do think we are likely to see the lawyer role redefined, and educating lawyers and clients into new, less dependent and less expensive modes of interaction is the final action step on our list.

What will lawyers do to help digitized firm formation? At the consultative level, the web will offer opportunities for quick and relatively inexpensive contact with lawyers who will help entrepreneurs to understand and customize largely prepackaged approaches. Phone calls and e-mails to “technical assistance” are part of the landscape for implementing all kinds of largely do-it-yourself computer applications, and legal-access applications for firm formation will be no exception. Financial yields per consultation may not be what most lawyers are used to in the current paradigm of customized service, but volume and the dependability of credit-card payment systems can provide a living wage.

There will also be a role for designers in this process: “knowledge engineers,” who will set the initial templates, and develop

standard forms around which entrepreneurial expectations can coalesce. Conceptualizing rules and approaches for legal service platforms is an expert task, and Susskind predicts that such designers will occupy a small but lucrative niche. Much as standardized creative commons licenses have streamlined certain kinds of deal making in the high-tech realm, so too will standard terms be developed and applied for digital business organizations, with the help of lawyers expert in both institutional design and computer programming.

Educating lawyers for these new relationships will require significant shifts in the curriculum at law schools and in continuing legal education to include these new skill sets. Developing such approaches for training good practitioners for both the design and helping stages will accelerate the realization by society of the gains from digital firm formation and other digital delivery of legal information and services. Courses such as Vermont Law School's "Digital Drafting" offer training at both of these levels of practice.²¹

The other side of the coin is educating entrepreneurs to be savvier about the choices they face in setting up companies. Classes on "Law for Entrepreneurs" too frequently focus on the impediments that law can pose for following up on business opportunities. Training in the institutional design principles that law helps make possible and in the software that will increasingly be available for their implementation should be a part of entrepreneurial studies everywhere. An early example of the approach can be seen in "Law, Technology, and Entrepreneurship," offered in the curriculum of Dartmouth's Thayer School of Engineering, as part of their Master of Engineering Management program. Its catalog description reads:

Taking a good idea and turning it into a successful product and a profitable business poses a number of technical, managerial, and financial challenges. The solutions to many of the challenges of entrepreneurship in general, and to those of starting up a technologically based business in particular, are provided by the law. A grounding in the law of intellectual property, contractual transactions, business structures, debt and equity

²¹ See <http://www.vermontlaw.edu/x303.xml?faculty=x6606&category>; see generally Brock and Goodenough, "Digital Lawyering in the Law School Curriculum."

finance, and securities regulation, both in the U.S. and in an international context, will help inventors and entrepreneurs to manage this part of the process intelligently and with a high likelihood of success.²²

Providing clients with both the tools and the knowledge to take firm formation largely into their own hands, coupled with providing lawyers with the skills to design good platforms and to deliver short, targeted advice on specific concerns, will help maximize the benefits from digital firm formation both for the individuals directly involved and for the economy as a whole.

THE FINALE: OPPORTUNITIES FOR A NEW “CAMBRIAN EXPLOSION”

So just what *are* the benefits for entrepreneurship and growth that can be unleashed by digitizing firm creation and management? First of all, there is the simple goal described by Baumol et al. of making firm creation and management “easy and inexpensive to do.”²³ Putting standard approaches onto the web, for little or no cost, is as good a way to accomplish this goal as we know about in 2010. But making traditional startups easier is only the starting point.

If the collaborative mashup of ideas and talents among a group of people is a frequently recurring pattern for entrepreneurial innovation, then migrating the process to the digital world can open up an exponentially larger set of innovative possibilities. As the spread of “Web 2.0”-style social media amply demonstrates, physical proximity is no longer a requirement for frequent and even intensive interaction among people. The entrepreneurial stewpot can now easily include players from around the world, only interacting through the web; the institutional framework that gives them the outcome assurance they need to make commitments to each other needs to be equally web-based. Proximity has often been credited as part of the success story of Silicon Valley; digital means make virtual proximity a trivial matter.

Furthermore, making digital business organizations available via the web and via mobile devices more generally has the potential to deliver good institutions to parts of the world where they are

²² “Graduate Course Descriptions,” Thayer School of Engineering at Dartmouth, accessed November 15, 2010,

<http://engineering.dartmouth.edu/graduate/courses/details.html#ENGM188>.

²³ Baumol et al., Good Capitalism, Bad Capitalism.

sorely lacking. Paul Romer has argued that “charter cities” can help to create islands (perhaps literally) of good institutions—and particularly good legal institutions—in countries and regions where they are in short supply (www.chartercities.org). This good idea has so far run into practical roadblocks. The bad institutions often help enrich exactly the corrupt governing class that would have to agree to the establishment of the charter cities. It will be much easier to end-run the governing class and build these charter cities not in sovereign territory but in the digital “cloud.” Institutions delivered through “cloud law” can be beneficial both in their own right and as goads to the development of better institutions in subpar physical jurisdictions.

Yet another benefit is in the kinds of collaborative initiatives that can be supported. David Johnson and Yochai Benkler have each argued that web-based peer production and other networks of cooperation can provide new avenues for innovation and growth.²⁴ Wikipedia, while nonprofit, is just the most noted example of this kind of new value creation. Digital institutions provide the only practical means for structuring an organization that would include a widely disbursed, web-communicating group of contributors. Nor is communication the only challenge. Complex problems of contribution assessment and benefit allocation can also be better solved algorithmically in a digital world than through word-based formulas and paper based agreements.

Coming full circle back to more traditional forms for startups, such digitized participation formulas also have the potential to improve the fairness—and performance—of small group innovative companies. Setting start-up participations among founders by bright-line fractions or other nearly arbitrary means when shares in a business are first allocated invites defection, slacking, resentment, and disputes as the work goes forward. An algorithmic ownership definition, incorporating a digitized adjustment process agreed to in advance and built into the code, can help to hold everyone to their promises and to reward actual contributions to the common cause, promoting both fairness and efficiency at the same time.²⁵

24 David R. Johnson, “Virtual Companies” (paper, 2008), accessed November 15, 2010, <http://dotank.nyls.edu/june18virtualcorp.html>; Benkler, Yochai. *The Wealth of Networks* (New Haven, CT: Yale University Press, 2006).

25 Clippinger, “Digital Innovation in Governance”; Gavin Clarkson and Marshall W. Van Alstyne, “The Social Efficiency of Fairness” (paper, 2009), accessed November 15, 2010, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1514137.

While the focus of this chapter is on solutions to the challenges of participants in dealing with each other, digital organizations will offer innovative solutions to challenges businesses encounter in facing the outer world as well. For instance, even small digital firms will have expanded options in raising capital. Digital management of the sale and transfer of participant interests creates the possibility of continuous equity markets in small company equity and debt, providing improved liquidity and removing some of the blocking power of a single important investor, such as a venture capital firm, a power that allows it to extract potentially “unfair” concessions from founders in subsequent funding rounds.

CONCLUSION

New laws in jurisdictions like Vermont are providing a legal basis for fully digitizing firm formation. And with the spread of software that can exploit these developments, one of the key elements of innovative growth will get significantly cheaper and easier. Looking a little further into the future, we can envision that “cloud law” will make good innovation-building institutions widely available for traditional startups, and that the power, reach, and scalability of digital interactions will enable entirely new combinations of people, ideas, and capital—with the potential to unleash new possibilities for innovation and growth. While movement in this direction is in some ways inevitable, with thought and intentional action we can create a better future faster, with concomitant benefits flowing in the United States and beyond.

If we get it right, soon, when a group of innovative entrepreneurs meet up in some virtual social-networking café, one of them can suggest something like: “Let’s structure it on a Vermont equalstart model, adjustable based on earn-in algorithm B, with standard Google Wave majority voting. I’ll tweak the software and send you the link for the company.” The velocity of innovation and growth will have increased as a result.