The Technology of Economics and Law or:

A Perspective For The Crafters of Modern Contract Law

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I. Introduction

Some argue that when language is deconstructed it loses all meaning. I disagree. I daresay if done right it helps unveil a more significant reality and in turn helps hone our decision making power. I will take my chances and deconstruct the phrase “Uniform Commercial Code” (UCC). Uniform, it is plain to see, is used in the context of “constant, unvarying, undeviating… to make uniform or standard.” I presume, for the sake of academic debate, that in this context uniform can safely be replaced with normative as the UCC is concerned with preserving norms or with normalizing economic behavior. Commercial, the adjective form of the noun commerce, relates to the more fundamental principle of economics. And lastly, code relates to a best practices consensus and statutory representation of what the modern law making bodies perceive as the Law. Indulging in this deconstructive enterprise, I suggest that we think of the UCC as the Normative Economic Law. Interestingly enough, if we deconstruct the word economic we find that it evolved out of the Greek words for house (oikos) and management or law (nomos). The term “House Rules” comes to mind and reasonably reflects the ideas reflected in the original word, meaning a set of rules for distributing scarce resources. Indeed, the etymology of the word economic suggests that the so-called field of law and economics is really just a modern exercise in helping lawyers recognize the futility of crafting laws independent of economic realities.

From whence comes the question of the day. When running the American Economy is the game, with Wall Street and Silicon Valley as the King and Queen of Diamonds, what “House Rules” work best? At the Wall Street end of the metaphor we have the king’s treasure while at the Silicon Valley end of the metaphor we have the promise of technology. The interrelationship between economics and technology is key. Peering back into history we can see how the earliest human innovations drove the economics of civilization. More recently, the economic dominance
of the United States, the American Century, was created by technical innovations born in America.\(^3\) On the coattails of the American industrial and technological revolution came the American political hegemony. It is in this context that the UCC was developed.

However, the game has changed. New York is not the King of Diamonds and Silicon Valley is not the Queen. *The World is Flat.*\(^4\) The American economy is influenced as much by technological developments across the globe as it is by innovative developments at UCLA and MIT. Just as technological superiority in America has driven American economic and political hegemony over the last century; the increasing globalization of technical innovation will drive the globalizing character of economic and political might over the next century. As we leave behind Post Modernity a new era begins to dawn: The Latest Age according to J.M Roberts,\(^5\) the Singularity according to Ray Kurzweil.\(^6\) Whatever the case, the expedition of technological progress is certain to eclipse the speed at which the law can respond. While Judge Richard Posner has eloquently argued that economic realities ultimately drive the law,\(^7\) it is also significant to consider that technological superiority in the fullness of time will trump economic might in the endgame of the new world order. It is in this context that the architects of the new UCC must operate. In crafting respected and effective law it is important to consider the diminishing effectiveness and significance of American economic and political might. Indeed, it may be more penetrating to seriously entertain the notion that an integrated assembly of elite technologists is increasingly replacing the power of all traditional governments.

Early manifestations of these new power players on the global stage include scientific lobbyists, non-governmental organizations at the United Nations, and a myriad of special interests groups hovering about and shuttling between the traditional political, financial and academic centers of Washington DC, New York and Boston. The architects of the next
generation UCC will be successful to the extent that they understand that the formidability of these new power players is insurmountable. Winston Churchill, referring to the American industrialists of Modern Times, said, “cultured people are merely the glittering scum that floats upon the deep river of production.”

The paradox should not be lost that as Churchill’s life spanned the demise of the British hegemony, he concurrently reached out to those establishing the new American hegemony and ensured a dominant role for Britain into the current era. Likewise, it should not be lost that the one way to retain a dominant role for the UCC is for its architects to reach out to the elusive techno-centric power brokers emerging across the globe in their efforts to craft meaningful 21st Century law.

II. Order of Primacy: Technology, Economics, Torts and Contract Law

I have characterized the elite technologist as the ultimate arbiter of world order, trumping lawyers, economists, politicians or any other traditional power broker. This rings of megalomaniacal thought. It is reminiscent of Stanley Kubrick’s 2001: A Space Odyssey. I suggest that in the process of entertaining such a hyperbolic notion we might be able to uncover some elusive truths. Professor Thomas S. Kuhn, in The Structure of Scientific Revolutions, destroys the notion that science is an objective progression towards the truth. Instead, Kuhn characterizes science as a series of varying conceptions in which each new viewpoint is replaced by something different, but no closer to the truth. Professor Henry J. Steiner in his seminal work, Moral Argument and Social Vision in the Courts, makes a corollary argument related to a legalistic revolution in the world of torts. Professor Steiner’s work overviews the “progression forward” towards tort strict liability that has occurred since the 1950’s. What is interesting however, is that the “move forward” to strict liability has conceptually been bringing us closer to
how common law tort liability functioned in the early 1800s, before the Massachusetts Supreme Court’s decision in Brown v. Kendall in 1850, which established the modern fault principal. Before the fault principal was established common law operated much as it does today, where parties are often held strictly liable for any harm they caused. There it is. One hundred and fifty years of American jurisprudence analogous to a dog chasing its tail. In both the world of science and the law it is tempting to perceive that decades of decisions and doctrine are moving us forward. If this does not sharpen our critical faculties perhaps we can at least find comfort in our own unsound thoughts by knowing that some of the greatest and most respected legal and scientific minds had it all wrong when judged though the prism of time.

Expounding on the notion that in the fullness of time, technology is sure to eclipse the law in the primacy of world order, it may serve well to employ at least one analogical device. Since this paper is written as part of a legal seminar, I will begin by highlighting a legal notion or innovative idea put forth by Professor Grant Gilmore, in 1974 in his seminal work, The Death of Contract. Professor Gilmore essentially articulates that contract law is gradually being absorbed into tort law, which results in a radically new way of analyzing civil obligation. A year later, Professor Richard E. Speidel argues persuasively that Professor Gilmore essentially has it wrong. Professor Speidel discusses the origins of the bargain theory of contract and consideration in the context of 12th and 13th century trade fairs. Professor Speidel ultimately concludes that the vitality of contract law is preserved. Using time as the test of truth, thirty years later it would appear that Professor Speidel has thus far prevailed. Professor Albert Einstein, however, made it clear that time is relative. Time is an illusion. If Professor Einstein is correct, then Professor Gilmore is right or he is wrong. There is no equivocating. Perhaps it is not prudent to resort to a scientific observation in legal discourse. Notwithstanding, it may serve well to imagine the
possibility that Professor Gilmore is correct in his idea that contract law is certain to be absorbed into tort law. In fact, it may serve well to imagine that Professor Gilmore is even more correct than he thought. Is it possible to conceive that contract law already has been absorbed into tort law? With language as our anchor to reality the answer is negative. However, let us not forget Justice Oliver Wendell Holmes’s famous declaration: “a word is not a crystal, transparent and unchanged, it is the skin of a living thought and may vary greatly in color and content according to the circumstances and time in which it is used.” I might suggest, for the purpose of academic speculation, that the word contract is merely an illusory term. Perhaps the word contract is a rubric for “unjust enrichment through the use of fraudulent misrepresentations”. At least holistically, many people in the world are getting richer while many others are getting poorer. Trillions of contractual transactions occur as part of this wealth transfer. Imagine for a moment, that all of these contracts were simply provisions of one omnibus contract. Consider then, the possibility, that one of the parties to this massive contract is more sophisticated than the other. Consider that the more sophisticated party holds a Ph. D. in Economics from the University of Chicago, an MPA from the Kennedy School of Government, and a law degree from Yale. Consider that the other party is an elderly woman, with a grade school education, who works at Wal-Mart. Consider that the more sophisticated party was found in a court of law, perhaps the Supreme Court, to have defrauded the less sophisticated party by employing fraudulent misrepresentations and an adhesion contract with a few trillion pages of small print. Well, there it is! The defrauded party has a tort claim. If I were her lawyer I would certainly try to hinge the prospects of my client’s recovery with the sharper teeth of a tort action. Indeed, I would try and prove that the more sophisticated party willfully schemed to defraud my client. I would look into the possibility of a class action lawsuit. I would contact state and federal prosecutors to initiate a
criminal investigation. In the context of law it may not be prudent to argue with the sequential
hypothetical facts as described above. Notwithstanding, Professor Jared Diamond of UCLA
argues more fully in his Pulitzer Prize winning book, Guns Germs and Steel, that the prism of
time makes it clear that the history of the world entails the sophisticated construction of a
“kleptocracy” (a systematic system of stealing).\textsuperscript{14} Professor Diamond’s metaphor is compelling.
It can be stated without citation that the world’s largest banks are operated by legions of persons
analogous to the sophisticated party in the hypothetical contract just discussed. It can also be
stated without citation that each of these largest banks systemically profits from less
sophisticated consumers on a regular basis. Are wolves perpetrating fraud while protected by
contracts worn as sheep’s clothing? One shining example includes the pedagogical endeavors of
banks in the training of their stockbrokers. There exists an abundance of evidence related to the
fraudulent sale of variable annuities to unsophisticated clients. Fortunately, some of these
practices are being addressed. The mechanism for resolution increasingly is the sharper sword of
torts. I suspect that even Professor Speidel may find the prospect of a client suing their
stockbroker today, as part of a tort action, more likely than it was forty years ago, when more
persons with a stockbroker were likely to be more sophisticated investors. It is safe to say, at
least in some circles, that Professor Gilmore’s innovative idea has ripened over time.

Torts have been described as a civil wrong. For purposes of academic debate I would
argue simplistically that breaching an agreement is a civil wrong and is therefore a tort. My bias
is plain. I agree with Professor Gilmore, at least in many cases, that contract law is clinically
deceased. If it is any consolation to my contract law professor, I think that at least in terms of
world order tort law is effectively dead as well. If it is any consolation to the dean of my law
school, in terms of world order, I do not think the law is completely dead. I argue however, with
the help of Judge Posner, that law is a slave to economics. Though I agree with Judge Posner, as far as I have read, I suggest that greater value could be gained by imagining the possibility that economics is a slave to technology. To all legal and economic minds I would suggest that, even if I fail to make my argument that technology is primary, they consider the possibility, realizing that engaging in this mental exercise may shed light on something else of value.

As mentioned earlier, Judge Richard Posner has suggested that economic realities ultimately drive the law. I agree. I also believe that technology ultimately drives economics. Returning to the exercise of language deconstruction, it appears that the word technology derives from “techno” meaning art and “logy” meaning a body of knowledge. The modern definition describes it as “the branch of knowledge that deals with the creation and use of technical means and their interrelation with life, society, and the environment, drawing on such subjects as industrial arts, engineering, applied science and pure science.”15 Economics, as Adam Smith educated us in *An Inquiry into the Nature and Causes of the Wealth of Nations*, deals with the allocation of scarce resources. Plain sense suggests that the knowledge dealing with creation and human interaction with our environment, i.e. technology, is about the scarcest resource that exists. There is no doubt that the greatest historical achievements of man, capturing fire, planting crops and inventing the wheel, were each initiated with an innovative idea—a technology. Once the idea and technology came to fruition and the prototype for the idea was developed, then came the importance of economics. Politics and law come after that. In the words of Amschel Mayer Rothschild, “Permit me to issue and control the money of a nation, and I care not who makes its laws.” This simplistic model can be applied in the same way today. The economic might of Wall Street is based upon the innovative ideas and technologies of the companies it represents. The law, moving about as slowly as the tortoises of the bases of the lampposts, which illuminate the
offices of the United States’ Supreme Court, is hard pressed to keep up with technology. In the words of Sandra Day O’Connor, when referring to how the Court is dealing with immense changes in technology, “Judges and courts move slowly. One of the symbols that architect Cass Gilbert created for the Supreme Court are lampposts resting on the backs of tortoises...”

III. The Primacy of Technology

1. An Historical Perspective

In Professor Jared Diamond’s influential book, *Guns, Germs, and Steel*, he effectively argues that the technology of weaponry, machinery and industrial science along with disease have primarily shaped world history and laid foundation for the present world order. "Technological innovation sustains a fundamental tension of civilization—the tension between humanity’s quest for more control over nature, and our equally strong desire for stability and predictability in the present." One technical innovation can transform the world. The technical innovation of the metal stirrup in the 8th century was one such example. The culmination of the powerful impact of the metal stirrup on world order is surely the Normans use of it in against the numerically superior forces of Anglo Saxon King Harold in 1066. The final conquest of England was in hand. Examples of the hegemonic might of technology abound: the cotton gin and its impact driving up demand for slaves; the development of the mechanical cotton picker one hundred and fifty years later and its rendering the jobs of millions of African American cotton pickers obsolete. The most influential recent historical innovation is perhaps the development of the American transcontinental railroad. The lines of credit were drawn on the world’s largest banks in London to finance the project in the early 1800s. The loans were paid back by the early 1900s, when the largest banks were in New York as a result of the railroad’s impact on global economics. More recently, the technical innovation of the atom bomb and its role in
international diplomacy is yet another example of the primacy of technological might. Enough foundation.

2. A Futuristic Perspective

Hindsight is helpful, but it is in reading the tealeaves in which we seek true value. What is the next stirrup, the next railroad? What is the next society transforming technology? Before delving into what is poised to be the iconoclastic defining technology of the third millennium, it will serve well to consider, as a backdrop, an analogy of how a modern innovation can render the law ineffectual. The digitization of music and its effect on copyright law enforcement is plain. Preventing the illegal transfer of digitized music via copyright law is a manifest impossibility. Nonetheless, the music industry has successfully influenced legions of lawyers and lawmakers to craft laws that are immediately no more effective than prohibition laws were in the Roaring Twenties. It cannot be stressed enough that making an unenforceable but prevalent activity illegal does not solve problems. It invents criminals. The scope of illegality and the harm caused to the music industry through illegal music copying is quantifiable. Whatever the consequences of imprudent legalistic treatment of copyright law, the ramifications are not likely to make or break the new world order. It is worthy to note however, that the imprudent legalistic treatment of other technological endeavors could have grave consequences.

To elucidate the purpose of this paper and to create a microcosm of how emergent technologies might manifest their potency it will serve well to examine nanotechnology. The paradox of nanotechnology is transparent. Very small innovations are creating very large changes for the way we live our lives. MIT, Harvard University, government research centers, and industry giants such as Hewlett Packard and IBM all have their horse in this race. International players abound as well. Oversimplifying for the purpose of brevity, nanotechnology
involves moving small things such as electrons from one atom to another atom in order to create big things, such as cures for cancer and heart disease. Nanotechnology applications transcend all sciences. Physics, biology, chemistry and electrical engineering converge in the context of nanotechnology. One example that may shed a glimmer of light on the potency of nanotechnology is the carbon nano-tube. The carbon nano-tube is stronger than steel. It is constructed of molecular carbon rings. Depending on its construction, it can act as an insulator, a conductor or a superconductor. Another example of nanotechnology’s tremendous potency is the construction of molecular robots that function much as white blood cells do, but with custom-applications. The impact of nanotechnology on global economics will be manifold and it will be extraordinary, but it will also be unpredictable. Innovations such as nanotechnology have the potential to change the world in far less manageable ways than how the stirrup helped reshape the world after the Norman Conquest. I suspect nanotechnology will far outpace the changes caused by industrialization, electronics and distributed computer information systems. Inherent in the deployment of nanotechnology on society are endless transactions governed by contract law. Paradoxically, the speed with which nanotechnology can transform the world far outpaces the speed with which contract law can help effectuate its proper deployment. The situation is analogous to the cart before the horse. Unfortunately, there is no turning this scenario around. The role of the American lawyer and the government is unclear. Leon Fuerth, the former National Security Advisor to Vice President Al Gore, sums up his view on the significance of the government's role in technology when addressing The 2002 Foresight Conference:

These guys talking here act as though the government is not part of their lives. They may wish it weren’t, but it is. As we approach the issues they debated here today, they had better believe that those issues will be debated by the whole country. The majority of Americans will not simply sit still while some [technological] elite strips them of their personalities and uploads themselves into their
cyberspace paradise. They will have something to say about that. There will be vehement debate about that in this country. Fuerth’s statement, suggesting that there will be a full and vetted national debate on how technology will impact average Americans, eerily contrasts with substantial evidence that most of the population is disconnected with technology and is not in a position to have a meaningful dialogue on the issues. Are the members of the Foresight Conference acting as though the government is not part of their lives because it is not? Can we edit Amschel Mayer Rothschild’s quote to say “Permit me to issue and control the technology of a nation, and I care not who makes its laws.” Whatever reality lies beneath the words of Fuerth and the actions of the elite Foresight Institute’s participants, one thing is certain. The challenge is manifest. What is even more daunting is that, unlike the multi-millennial agrarian revolution, the two hundred year industrial revolution, or the seventy-five year electronics revolution, the nanotechnology revolution is likely to play out in less than twenty years. The exponential acceleration of uncertain technological change creates a murky horizon on which lawmakers must chart their course.

IV. Lawmakers’ Prudent Response to Technology

Understanding that technological change is not necessarily progress is paramount. Technology has the potential to be a beacon of mankind’s greatest hopes, yet it has the same potential to catalyze temporal destruction. The legalistic response should be accordingly bifurcated. The law must endeavor to encourage technological blessings, while curtailing technological evils. The lawmakers’ response should be rooted in positive social objectives. Professor Julian McDonnell discussed in 1978 the “…concept of law as a means to a selected social ends – a method of social engineering”. More recently, Orly Lobel discussed the
emergence of a critical legal consciousness. Lobel takes a long view, noting that while many legal thinkers have recognized the limits of law in bringing about social change, the modern emergence of a critical legal conscious creates a scenario where a broader consciousness allows us to identify that spheres of influence traditionally outside the realm of law may indeed overlap with law. Interestingly enough Ray Kurzweil’s book on the advent of the “Singularity” discusses the emergence of an analogous technologically based state of consciousness. Kurzweil expounds on his theory, suggesting that those with the “Singularity” perspective, have a perspective unique to people that have blended their existence so much with technology that their awareness is far beyond that of the rest of the population. He discusses the emergence of a “proto-human” with superhuman capabilities, both physically and mentally. I suspect that the most effective legal thinkers of the 21st Century will possess a consciousness that overlaps both Kurzweil’s and Lobel’s mental constructs.

How should lawmakers craft effective law in a technology driven world? Whether or not one agrees or disagrees that technological endeavor is more powerful than the law, it is clear that technological influence is growing. How do lawyers respond? Professor Richard Speidel, in his 1974 article discussed earlier, calls for the constructive contributions of historians, lawyers, economists and social scientists. I agree, but there should be more. It is far and away the work of physicists, chemists, biologists and computer scientists that is building the world from whence the most critical consciousness will emerge. The extent to which lawmakers familiarize themselves with such spheres of influence, I suspect, will impact the effectiveness of their law-based social engineering.

Entertaining the possibility that technology is the ultimate driver of economics, politics and law creates unique questions going to the heart of the very institutions maintaining the
current social order. Scientists of the British Empire in the early part of the 20th century developed technology to transfer radar images over telephone lines. Apropos of this, President Eisenhower contacted the President of MIT and created a government research center and used it to create a distributed computer defense system for North America—NORAD. Some thirty years later future Vice President Al Gore sponsored legislation to release this distributed computer system technology to the public. This led to the publicly available Internet. In the middle of the 15th Century Johannes Gutenberg’s invention of the printing press undermined the Roman Catholic Church’s monopoly over the written word and hence its effective monopoly over knowledge and culture. Does the end of the Anglo-American monopoly over digital information presage the crumbling of the Occidental hegemony? I offer no answer.

In addition to a generic suggestion of greater cross cultivation among lawyers and scientists, there exists practical areas for improvement. Contract law differentiates between sophisticated and unsophisticated parties to a contract. Securities and agency law discuss the importance of a fiduciary responsibility of certain parties who are in a better position to help a less sophisticated or less informed party. I might suggest that a legal construct be developed that places a burden and a responsibility on individuals who, for whatever reason, are positioned, because of their technological superiority, to exercise undue influence over another person or society. Members of the National Association of Securities Dealers are expected to behave as fiduciaries over their clients to promote their wealth and to promote integrity in the securities marketplace. Is it reasonable to place a similar burden on scientists developing medications and defense technologies? Do these individuals have a general “technological responsibility” to act prudently and reasonably to prevent dangerous innovations from leaking into any marketplace? Technological change is driving the behavior of humans at an exponential rate. A technological
elite, often uneducated in social sciences and social engineering, is poised to deploy technologies with tremendous ramifications to human life. At the same time, the vast billions of the earth’s population are in no position to conceive of what ramifications this technology may have on them. Do sophisticated technological elites have a moral obligation? Do they have a legal obligation to their less sophisticated counterparts? Will the technological elite ultimately implement technology to manipulate their less sophisticated counterparts for their own purposes? Are the less technologically savvy members destined to become de-facto slaves of the technologically elite? Has this already happened? I offer no answers.

V. Concluding Remarks

The optimal formula for making the world a better place may always elude us. However, the challenge to attain the unattainable is certain to motivate us more. When effecting positive change, whether it is achieved through legalistic device, economic ingenuity, or technological innovation, one thing is clear. It is a summons to engage that is greater than ever. The perils of technology in the wrong hands are as certain to eclipse human existence as the promise of technology in the right hands is certain to eliminate all forms of human suffering. Each modern lawyer is entrusted with the opportunity and with the resources, hence with the responsibility, to use the law to improve the human condition. Arthur Schopenhauer remarked that, “Everyone takes the limits of his own vision for the limits of the world.” I suspect that the visions of greatest 21st Century legal thinkers will overlap the visions of the 21st Century’s greatest innovators.31 Reaching beyond the sphere of legal reasoning and understanding that creative innovation is the scarcest resource, I trust, will help lawmakers in their lofty quest to transform mankind toward the sublime.

In this Pulitzer Prize winning seminal work the author elaborates on the fate of human societies and how they are primarily driven by factors including technical innovations. Diamond, Jared, *Guns, Germs, and Steel*, W.W. Norton & Company, Inc. 1999.


This author discusses in his synoptic history of the world the latest period and how the acceleration of change and technology is increasing rapidly. Roberts, J.M., *History of The World*, Oxford University Press 2003.

This author clarifies his vision on the concept of the “Singularity” and how it relates to an emerging consciousness where certain individuals as a result of their access and blending with technology and honed perceptions will become more of an elite and powerful demographic. Kurzweil, Ray, *The Singularity is Near*, Penguin Books 2006.


In Stanley Kubrick’s 1969 *2001: A Space Odyssey*, a panorama of history from its beginnings up to man’s exploration of space is shown with the power of technology as a seminal theme. Kuhn, Thomas H. *The Structure of Scientific Revolutions*, The University of Chicago Press, 1962.

Bickel, Robert D. (Available at http://www.law.stetson.edu/courses/torts/default.htm)


14 *Diamond*, at 265.


16 Sandra Day O’Connor (Available at http://money.cnn.com/blogs/brainstorm/2006/06/sandra-day-oconnor-rules.html)

17 *Diamond*, at 195.


19 *Id.* at 1.

20 *Id.* at 2.


22 *Kurzweil*, at 210.


24 *Kurzweil*, at 305.

25 *Kurzweil*, at 470.


Crow, at 3.

Kurzweil, at 7.