

1998

Chaos, Complexity, and Coevolution: The Web of Law, Management Theory, and Law Related Services at the Millennium

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CHAOS, COMPLEXITY, AND COEVOLUTION: THE WEB OF LAW, MANAGEMENT THEORY, AND LAW RELATED SERVICES AT THE MILLENNIUM*

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* The first two parts of this article are printed here. The remainder of this article, including the appendix, will be printed in the Fall 1998 issue of the *Tennessee Law Review*. See Thomas Earl Geu, *Chaos, Complexity, and Coevolution: The Web of Law, Management Theory, and Law Related Services at the Millennium* (pts. III-V), 66 TENN. L. REV. (forthcoming 1998).

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The author gratefully acknowledges the Lauren Lewis Research Fund and the University of South Dakota School of Law for funding this article. The author also gratefully acknowledges the invaluable assistance of Matthew Hagny, J.D., University of South Dakota, whose contributions on portions of this article merit near co-author status.

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Absolute continuity of motion is not comprehensible to the human mind. Laws of motion of any kind become comprehensible to man only when he examines arbitrarily selected elements of that motion; but at the same time, a large proportion of human error comes from the arbitrary division of continuous motion into discontinuous elements.

- Leo Tolstoy¹

Look around. Every industry is experiencing major structural trauma; it's not just law. All around us every industry, every economic relationship, is undergoing this transformation at the point of collision with 20th century technology. Lawyers have barely begun to enter this period of profound change, but the way we do what we do is about to change because clients are changing. It is their maturity in this process of transformation that we are being compelled to react to.

- Sam Guiberson, Houston lawyer²

I. INTRODUCTION

The purpose of this article, which is published in two issues, is threefold. Its overarching purpose is to explain that business-management theory, including economics, coevolves with the law of business associations, and that both, in turn, coevolve with the business of law. One way to explain such coevolution is by using complexity theory, which includes both complex adaptive system (CAS) and punctuated equilibrium (PE) theories, as a way to analyze the characteristics of economic and legal systems.³

1. LEO TOLSTOY, *WAR AND PEACE* 917 (Louise Maude & Aylmer Maude trans., Simon & Schuster, Inc. 1942) (1864).

2. Steven Keeva, *Opening the Mind's Eye*, A.B.A. J., June 1996, at 48, 55.

3. Even though a detailed explanation of complexity, chaos, or complex adaptive

Embedded within that overarching purpose are two more modest goals. The first is to survey current management and economic theories to understand the context within which business associations affect legal issues; the second is to use business clients as a mirror in which to see the changing nature of the practice of law.

The research methodology of this article is like that of paleontological taxonomic monographs. These monographs attempt to formally classify newly discovered biological specimens according to where their observed characteristics fit into existing classification schemes. In the same manner, this article will observe and describe the characteristics of selected legal and economic system specimens to which CAS theory applies, and then will compare and contrast them to existing models of other known systems.

As one of a small but growing number of works on the subjects of chaos theory, complexity theory, CAS theory, and the law,⁴ this article

systems is not necessary for parts I and II of this article, some idea of the definitions of these terms may be helpful. Professor Hope M. Babcock provides a succinct explanation:

Complexity theory, which includes chaos and catastrophe theory, is an overarching field of mathematical analysis of the behavior of nonlinear dynamical systems. It offers a new way of thinking about the collective behavior of many basic interacting units (e.g., molecules, atoms, cells) that have the potential to evolve (or change) over time. While the definition of complexity is content-dependent, for complexity to emerge there must be both time (described by complexity theorists as an irreversible medium) and nonlinearity (a condition that produces complex and frequently unexpected results). Complexity theory shows why dynamic forces inevitably lead to unpredictable behavior in nonlinear systems, and that the most successful systems are those that maintain a balance between stasis and change and accomplish that result by maintaining a chaotic, random component in their midst. Complexity theorists are interested in explaining how order can emerge from this mass of evolving individual units and how unity can be found in diversity.

Hope M. Babcock, *Democracy's Discontent in a Complex World: Can Avalanches, Sandpiles, and Finches Optimize Michael Sandel's Civic Republican Community?*, 85 GEO. L. REV. 2085, 2086-87 (1997) (citations omitted). A more detailed explanation of these theories will appear in the appendix to this article. See 66 TENN. L. REV. (forthcoming 1998).

4. Other articles that discuss chaos or complexity theory and law include Edward S. Adams et al., *At the End of Palsgraf, There is Chaos: An Assessment of Proximate Cause in Light of Chaos Theory*, 59 U. PITT. L. REV. 507 (1998); Hope M. Babcock, *Democracy's Discontent in a Complex World: Can Avalanches, Sandpiles, and Finches Optimize Michael Sandel's Civic Republican Community?*, 85 GEO. L. REV. 2085 (1997); Vincent Di Lorenzo, *Complexity and Legislative Signatures: Lending Discrimination Laws as a Test Case*, 12 J.L. & POL. 637 (1996); Vincent Di Lorenzo, *Legislative Chaos: An Exploratory Study*, 12 YALE L. & POL'Y REV. 425 (1994); Gerald Andrews Emison, *The Potential for Unconventional Progress: Complex Adaptive Systems and Environmental Quality Policy*, 7 DUKE ENVTL. L. & POL'Y F. 167 (1996); Thomas Earl Geu, *The Tao of Jurisprudence: Chaos, Brain Science, Synchronicity, and the Law*, 61 TENN. L. REV. 933 (1994); Andrew W. Hayes, *An Introduction to Chaos and Law*, 60 UMKC L. REV. 751 (1992); Jeff L. Lewin, *The Genesis and Evolution of Legal Uncertainty About "Reasonable Medical Certainty,"* 57 MD. L. REV.

presents the hypothesis that law in the United States is a CAS and that the hypothesis warrants further research. This hypothesis will be justified through a selective comparison of law, business-management theory, and biological evolutionary theory as informed by CAS theory. Even if the proposition that law is a CAS is wrong, CAS theory may still serve as a model with which to better understand law.⁵ Finally, this article will discuss the implications of this hypothesis for the business of law.

Breathtaking in its scope and potential, the subject of complex adaptive systems can be visualized as being at the "edge of chaos."⁶ As Stuart Kauffman, a geneticist and leading CAS researcher, has speculated:

The edge of chaos may even provide a deep new understanding of the logic of democracy. . . . [W]e will find surprising new grounds for the secular wisdom of democracy in its capacity to solve extremely hard problems characterized by intertwining webs of conflicting interests. . . . Democracy may be far and away the best process to solve the complex problems of a complex evolving society, to find the peaks on the coevolutionary landscape where, on average, all have a chance to prosper.⁷

380 (1998); David G. Post & David R. Johnson, "Chaos Prevailing on Every Continent": *Towards a New Theory of Decentralized Decision-Making in Complex Systems*, 73 CHI-KENT L. REV. (forthcoming 1999); Glenn Harlan Reynolds, *Chaos and the Court*, 91 COLUM. L. REV. 110 (1991); Mark J. Roe, *Chaos and Evolution in Law and Economics*, 109 HARV. L. REV. 641 (1996); J.B. Ruhl, *Complexity Theory as a Paradigm for the Dynamical Law-and-Society System: A Wake-Up Call for Legal Reductionism and the Modern Administrative State*, 45 DUKE L.J. 849 (1996); J.B. Ruhl & Harold J. Ruhl, Jr., *The Arrow of the Law in Modern Administrative States: Using Complexity Theory to Reveal the Diminishing Returns and Increasing Risks the Burgeoning of Law Poses to Society*, 30 U.C. DAVIS L. REV. 405 (1997); J.B. Ruhl, *The Fitness of Law: Using Complexity Theory to Describe the Evolution of Law and Society and Its Practical Meaning for Democracy*, 49 VAND. L. REV. 1407 (1996); J.B. Ruhl, *Thinking of Environmental Law as a Complex Adaptive System: How to Clean up the Environment by Making a Mess of Environmental Law*, 34 HOUS. L. REV. 933 (1997); J.B. Ruhl, *Thinking of Mediation as a Complex Adaptive System*, 1997 BYU L. REV. 777; Robert E. Scott, *Chaos Theory and the Justice Paradox*, 35 WM. & MARY L. REV. 329 (1993). For citations to articles where the chaos or complexity theory is discussed but is not the main thesis, see Di Lorenzo, *Complexity and Legislative Signatures*, *supra*, at 639-40 n.11.

5. "The value of [a] model . . . rests not on how well it describes reality, but on whether it allows us better to understand it." Ronald J. Gilson, *Value Creation by Business Lawyers: Legal Skills and Asset Pricing*, 94 YALE L.J. 239, 252 (1984) (discussing the capital asset pricing model).

6. STUART KAUFFMAN, *AT HOME IN THE UNIVERSE: THE SEARCH FOR LAWS OF SELF-ORGANIZATION AND COMPLEXITY* 28 (1995).

7. *Id.*

Such a statement begs further study from within the legal academy, and it was a primary reason for writing this article. I hope that this article will refine prior research results in this area by reflecting the features of the novel legal-system specimens described herein, providing a marginal accession of knowledge in the process. Much of this article, however, is theoretical.⁸

An important goal of research is to reach conclusions that may lead to new products through the application of these conclusions. Therefore, I hope this article and its underlying research will encourage the process of reaching those conclusions and showing the promise of direct application. Theory can, at times, lead to breakthrough applications. For example, Holland suggests that "[o]ne specific piece of understanding that theory could supply is a more principled way of locating 'lever points' in *cas*."⁹ For instance, a "lever point" in a CAS is the way that a "vaccine 'levers' the immune system into learning about . . . [a] disease."¹⁰

The fact that a theory does not directly suggest the most, or even any, appropriate means to accomplish practical goals does not render it useless. Instead, such a theory may suggest or explain why something does not always work as expected, or alternatively, it may suggest the appropriate level of confidence to be placed in predictions derived from that theory or another. Therefore, one academic lawyer might have been too narrowly focused on affirmative policy prescriptions when he pejoratively suggested that his understanding of chaos theory is that it is not "developed enough to enable us to make explanatory predictions. They do not tell us that if this happens, then that will happen."¹¹ Indeed, this article attempts to show that the lack of predictability is itself part of the explanatory power of chaos theory, and that those who generally expect such predictability from theories live in a mathematically linear world. In contrast, chaos theory suggests that most of the world is of nonlinear design. A better understanding of chaos theory, therefore, might suggest that macro economic and political

8. See generally JOHN H. HOLLAND, *HIDDEN ORDER: HOW ADAPTATION BUILDS COMPLEXITY* (1995). As John Holland says:

Theory is crucial. Serendipity may occasionally yield insight, but is unlikely to be a frequent visitor. Without theory, we make endless forays into uncharted badlands. With theory, we can separate fundamental characteristics from fascinating idiosyncrasies and incidental features. Theory supplies landmarks and guideposts, and we begin to know what to observe and where to act.

Id. at 5. In a different context, funding theoretical research is defended as follows: "Cutting off fundamental, curiosity-driven science is like eating the seed corn. We may have a little more to eat next winter but what will we plant so we and our children will have enough to get through the winters to come?" CARL SAGAN, *THE DEMON-HAUNTED WORLD: SCIENCE AS A CANDLE IN THE DARK* 400 (1995).

9. HOLLAND, *supra* note 8, at 5 (emphasis in original).

10. *Id.*

11. Roe, *supra* note 4, at 667.

policymakers, and microeconomic decision-makers, when attempting to choose from among several possible future courses of action, place neither too much nor too little reliance on predictions that are the result of mere linear analyses.

Complexity theory and biology, including CAS theory, may also become the *zeitgeist* of our time, as well as the *gestalt* of our knowledge.¹² Regardless of whether the structure of the legal system in the United States is classified as a CAS, the search for patterns, which is an inherent part of complexity theory, will remain popular in many disciplines, including law:

The manner in which the interpretation and application of jurisprudential concepts and themes influences the history of legal ideas seems, in the United States, to be particularly significant and problematic. There runs, throughout this book, a distrust of what might be termed the 'pendulum swing' vision of American jurisprudential theory. This vision, I believe, dominates American jurisprudential discourse

. . . American jurisprudence since 1870 is characterized not by the pendulum-swing view of history but by complex patterns of ideas. . . . Ideas—along with values, attitudes and beliefs—tend to emerge and decline, and sometimes they are revived and refined.¹³

Moreover, if complexity theory and biology are the *gestalt* of our knowledge, then there should exist in legal literature a basic reference primer on

12. "Gestalt" is defined as a "physical, biological, psychological, or symbolic pattern or configuration of elements so unified as a whole that its properties cannot be derived from a simple summation of its parts." THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE 762 (3d ed. 1993). "Zeitgeist" is defined as "[t]he spirit of the time; the taste and outlook characteristic of a period or generation." *Id.* at 2075.

13. NEIL DUXBURY, PATTERNS OF AMERICAN JURISPRUDENCE 2-3 (1995). This book is concerned with jurisprudential history and does not attempt to apply chaos or complexity theory to law.

A possible benefit to research in this area is that it may provide a coherence for law that is consistent with Professor Joseph Raz's definition of coherence, *i.e.*, it may provide "a more perfect" coherence because, as explained later in this article, coherence consistent with complexity theory is simultaneously global and local. Raz describes "coherence" as follows:

The coherence I will speak in favor of is local coherence: coherence of doctrine in specific fields. The coherence-based explanations to which I objected are global coherence accounts. They impose coherence on the whole of the law. They seem to me to err in two important ways First . . . global coherence accounts underestimate the degree and implications of value pluralism, the degree to which morality itself is not a system but a plurality of irreducibly independent principles. Second, and this has been the main lesson of the arguments above, they are attempts to idealize the law out of the concreteness of politics. The reality of politics leaves the law untidy.

Joseph Raz, *The Relevance of Coherence*, 72 B.U. L. REV. 273, 310 (1992).

those subjects. There should also exist a collection of articles and essays that periodically provides a current and comprehensive bibliography of those subjects. The quotes and sub-text of the notes may allow this article to be used as such an anthology, comprehensive research source, or bibliography.

Complexity theory, although sometimes veiled in other terms, raises fundamental questions about the application of any economic theory that is based upon purely linear mathematical models. If complexity theory is validated as applied to law, it should alter the economic theories upon which the law and economics movement is currently based, and should consequently change the way members and observers of that movement see the world. Paradoxically, this new perspective may actually strengthen the law and economics movement because it might provide a more realistic model of economic behavior than those economic models in current use. Indeed, some economists have already analogized from the natural world to provide a more realistic economic model:

To understand what those [economic] forces are doing and what must be done to adjust to them, it is necessary to borrow the concept of "punctuated equilibrium" from evolutionary biology. Normally evolution proceeds at a pace so slow that it is not noticeable on a human time scale. The top-of-the-food-chain, survival-of-the-fittest species usually only become more dominant—bigger and stronger. But occasionally something occurs that biologists know as "punctuated equilibrium." The environment suddenly changes and what has been the dominant species rapidly dies out to be replaced by some other species. Evolution takes a quantum leap. Natural selection, which normally works on the margins, suddenly alters the core of the system. . . .

. . . .

. . . The characteristics needed to be a winner on one side of a period of punctuated equilibrium are very different from the characteristics needed to be a winner on the other side.¹⁴

This article is organized to reflect its research methodology. Part II will begin by surveying articles written by futurists and prognosticators about what the next century might hold for the economy, the workplace, and business. It will then review the literature of management consultants and economists for suggestions as to how business associations must adapt to cope with this new business environment. This part includes a lengthy discussion of the "virtual organization." It will then set the stage for Parts III-IV of this article, which will discuss selected business literature that contains ecological and evolutionary discussions and comparisons. In

14. LESTER C. THUROW, *THE FUTURE OF CAPITALISM: HOW TODAY'S ECONOMIC FORCES SHAPE TOMORROW'S WORLD* 7-8 (1996) (footnote omitted).

addition, it will also address the current debate within the evolutionary sciences concerning how the allied components of complexity theory (including the relation of catastrophe theory to punctuated equilibrium theory) might alter classical evolutionary theory. An important idea contained in that part of this article will be the idea of coevolution.¹⁵ Before

15. There is a long history of analogizing evolutionary biology to law. Relevant to this article, socio-biologist Edward O. Wilson describes the biological process of "gene-culture coevolution" in *The Wilson Quarterly* as follows:

The process of gene-culture coevolution itself is . . . still in an early stage of research, but a broad outline of the process in theory is possible. I believe the following account represents a consensus of the small number of investigators working on the subject.

Culture is created by the communal mind, this view holds, and each mind in turn is the product of the genetically structured human sensory system and brain. Genes and culture are therefore inseparably linked. But the linkage is flexible, to a degree still mostly unmeasured. The linkage is also tortuous: genes prescribe epigenetic rules, which are the inherited neural pathways and regularities in cognitive development by which the mind assembles itself. The mind grows by learning those parts of the environment and surrounding culture available to it. . . .

The epigenetic rules nevertheless vary genetically in degree among individuals within populations. Some individuals have always inherited epigenetic rules in different strengths from others, degrees of expression which, in past evolutionary time at least, enabled them to survive and reproduce better in the surrounding environment and culture. By this means, over many generations, the more successful epigenetic rules spread, along with the genes that prescribe them.

Edward O. Wilson, *Resuming the Enlightenment Quest*, THE WILSON Q., Winter 1998, at 16, 24.

The position opposed to the one Wilson espoused was also argued in the same issue of *The Wilson Quarterly*. See Richard Rorty, *Against Unity*, THE WILSON Q., Winter 1998, at 28. An editorial juror who wrote of both Wilson's and Rorty's positions alluded to the coevolution of science and the realization of political goals:

[S]ince the 18th century the sciences "have . . . made possible the realization of political goals that could never have been realized without them." How did they accomplish that? Why, by identifying true (or nearly true) universals, such as the common origins, physiologies, aspirations, and feelings of all humankind, *and refuting the false ones*, such as the divine right of kings, natural slavery, and the general inferiority of women. Yes, by some scientists, and at various times, science has offered false universals, but those have been overthrown *only by better science*. And without reaching for true, or better-approaching-true commonalities, we would have only the idiosyncrasies of tribes, including those of whatever tribe you or I happen to belong to.

Paul R. Gross, *The Icarian Impulse*, THE WILSON Q., Winter 1998, at 39, 48 (quoting Richard Rorty). Importantly, the catalyst for this debate was the publication of *CONSILIENCE: THE UNITY OF KNOWLEDGE* (1998), Wilson's latest book. Therein he asserts the eventual end of the social sciences as they are polarized to either science or the creative arts. This bifurcation will be possible, according to Wilson, because the increased understanding of the function of the human brain will allow people to better delineate the subjective and the objective. Wilson expressly discusses complexity theory in the book and states that he would

discussing law in combination with complexity and evolutionary theories, it will survey the literature that has applied complexity theory directly to business, without the mediation of evolution. Finally, Part V of this article will conclude with an illustrative application of possible lessons derived from complexity theory (particularly CAS) to the theory, practice, and business of law. Thus this article briefly introduces the reader to the possible importance of CAS. Part II then begins a survey of business literature to ascertain the current landscape of the economy, and the ways in which individual businesses are advised to respond to those changes. Part III of the article will discuss CAS and complexity theory and its application to business and biological evolution. Part IV will then illustratively apply those theories to organizations delivering legal services.

This article's organization also illustrates, and in some ways mimics and caricatures, complexity theory. Through its structure, this article aims to convey respect for the best of postmodern theory, perhaps suggesting a convergence of art and science.¹⁶ That convergence might also allow readers to make their own novel "connections," and to engage in the creative process of discovery or criticism. In this manner the real richness of this article emerges from the unique associations formed by the reader in the creative space between the article's basic informational nodes.¹⁷ As

"like to be a true believer" in complexity theory, but as yet, can only believe "that they are on the right track." *Id.* at 88. Interestingly, he suggests that learning more about the brain (which may be a complex adaptive system) may lead to important discoveries about complexity. *Cf. id.* Thus, Wilson believes traditional biological research could be the key to understanding complexity theory, *id.*, while those studying CAS would posit the opposite, *i.e.*, the study of CAS could be the key to understanding the brain.

16. This convergence involves the mutual concern of science and literary criticism with perspective. In science this concern about perspective is known under labels like the "observer problem." For example, "[i]n quantum physics, the observation problem has led scientists to various schools of thought, each focused on the role played by consciousness." MARGARET J. WHEATLEY, *LEADERSHIP AND THE NEW SCIENCE: LEARNING ABOUT ORGANIZATION FROM AN ORDERLY UNIVERSE* 61 (1992). It has led physicists to ask the following two questions: "Is it consciousness that evokes the world? Is there any such thing as reality independent of our acts of observation?" *Id.* The issue framed by the two questions is actually less important than the fact that they are both observer-based and call into issue what the observer receives.

In literary criticism it is known as "poststructuralism," of which "deconstruction" is a part. "The thread that connects the various schools of poststructuralism is their determination to reverse the traditional primacy of author over reader in the interpretation of texts." RICHARD A. POSNER, *LAW AND LITERATURE: A MISUNDERSTOOD RELATION* 216 (1988). Both the observer problem in physics and the poststructural view of literary criticism view the observer or reader as a participant in the process. This article's structure is intended to take advantage of the unique perspectives and knowledge of the reader to both interpolate and extrapolate the research the article seeks to report. Similar language functions have played an important role in the evolution of the common law.

17. This article was meant to be read in roughly the same style as JAMES BURKE,

previously discussed, finding structure or pattern is a hallmark of complexity theory and the theory of complex adaptive systems. Paradoxically, forming unique associations is the first step in determining if any recurring pattern exists.¹⁸ The balance of the next part of this article is a detailed selective examination of current economic and business literature that I later use to construct the hypothesis that law and business coevolve within a complex adaptive system.

THE PINBALL EFFECT: HOW RENAISSANCE WATER GARDENS MADE THE CARBURETOR POSSIBLE—AND OTHER JOURNEYS THROUGH KNOWLEDGE (1996), which was published almost two decades after his best known work, CONNECTIONS (1978). In *Pinball Effect*, Burke apparently invents a new “gateway” citation system using three numbers, the first of which signifies the count number, in sequential occurrence order, of a particular gateway. The second number cross-references to the number of another gateway, and the third number represents the page number on which that gateway appears. The importance of the “gateway” system in *Pinball Effect*, however, was that because “there are 447 gateways here which cross, then in one sense, that means this book could conceivably be read [in] at least 447 different ways. . . . [And if each variant were read, they] would give you a true feel for the pinball effect of the way change happens.” *Id.* at ix-x. Thus, a gateway is a means through which to make connections. And as Margaret J. Wheatley notes, making connections is an act of interpretation:

In the traditional model, we leave the interpretation of information to senior or expert people. Although they may be aware, to some extent, that they are interpreting the data, choosing some aspects of it, and ignoring others, few have been aware of how much potential data they lose through acts of observation. A few people, charged with interpreting the data, are, in fact, observing only very few of the potentialities contained within that data.

WHEATLEY, *supra* note 16, at 64.

18. One of those patterns is called a *fractal*. Basically fractals are “a way of describing, calculating, and thinking about shapes that are irregular and fragmented, jagged and broken-up [which] implies an organizing structure that lies hidden among the hideous complication of such shapes.” JAMES GLEICK, CHAOS: MAKING A NEW SCIENCE 113-14 (1987). For example, a jagged mountain is not only similar to other mountains, but is also similar to boulders, rocks, pebbles, and, on an even smaller scale, grains of sand. See HARRIETT HAWKINS, STRANGE ATTRACTORS: LITERATURE, CULTURE AND CHAOS THEORY 114 (1995). Stated differently, “[f]ractals also break up into copies of themselves.” *Id.* In a fractal pattern there is a certain self-similarity between and among items of the same or different scales. See *id.* Through its organization, this article in some ways mimics a fractal pattern, because of the self-similarity of certain features across both scale and academic discipline. For stunning photographs and illustrations of fractals, see JOHN BRIGGS, FRACTALS: THE PATTERNS OF CHAOS (1992), and MICHAEL MCGUIRE, AN EYE FOR FRACTALS: A GRAPHIC & PHOTOGRAPHIC ESSAY (1991).

II. THE CONFLUENCE OF THE UNDERLYING ECONOMIC, DEMOGRAPHIC, POLITICAL, SOCIOLOGICAL, AND TECHNOLOGICAL CHANGE FORCES

A. The Macro Changes

1. Background and Purpose

This section briefly identifies the writings of selected business authors and futurists about the macro forces affecting the business environment. Generally, the major forces challenging businesses are: (1) the “end” of communism as a viable political regime, and the related “victory” of liberal democracy and the market economy; (2) the shift from a form of capitalism that emphasizes land, labor, capital, and entrepreneurial skill, to one that emphasizes knowledge as enhanced and applied through the use of technology; (3) the changing demographics of population growth, mobility, and aging; (4) the emergence of a global economy; and (5) the evolution of a multipolar world in which no nation-state may dominate and in which transnationalism, regionalism, and tribalism will become increasingly important.

The nexus between those macro forces for change and certain areas of law, such as a business association’s choice of legal entity, seems intuitive. Business planners choose and modify entity structures in response to the dynamic macro forces, such as legal and political regulation, that operate on the economy and entire markets.¹⁹ Nonetheless, a caveat is warranted that

19. The metaphor of evolution between business and law has an intuitively seductive appeal, and this theme has been used by other authors without a detailed explanation of evolution or the underlying theoretical comparison. For example, a symposium issue of *Law & Policy* was dedicated to the theme of “Business Adaptation to Legal Regulation.” See Symposium, *Business Adaptation to Legal Regulation*, 15 LAW & POL’Y 169 (1993). The articles in the symposium resulted from a 1990 conference co-sponsored by the Centres for Socio-Legal Studies at the University of Oxford and The Ohio State University. *Id.* at 169. “The conference was divided into parts representing three major forms of government regulation—financial, social, and consumer.” *Id.* Symposium article titles included: David A. Clanton, *Predicting Business Reaction to Consumer Regulation: A Prognosticating Mine Field*, 15 LAW & POL’Y 253 (1993); Paul Fenn, *Business Response to Regulation: An Economist’s Perspective*, 15 LAW & POL’Y 243 (1993); Hazel Genn, *Business Responses to the Regulation of Health and Safety in England*, 15 LAW & POL’Y 219 (1993); Keith Hawkins & Bridget M. Hutter, *The Response of Business to Social Regulation in England and Wales: An Enforcement Perspective*, 15 LAW & POL’Y 199 (1993); and Edward J. Kane, *Reflexive Adaptation of Business to Regulation and Regulation to Business*, 15 LAW & POL’Y 179 (1993). One of the authors introduced his article as follows:

The title stresses that the topic of business adaptation to legal regulation has an interactive or reflexive character. The primary goal of this paper is to proclaim the wisdom of thinking about the *joint* adaptability of business to legal regulation, and of legal regulation to business. Adaptation is a two-sided coin.

this article neither attempts to reduce law to economics nor does it necessarily start with the traditional law-and-economics premise. An observation made by Professor Robert C. Ellickson, who devoted a substantial part of his "scholarly career to examining land-use issues from a law-and-economics perspective,"²⁰ may be instructive. During the earlier part of his career, he used "a central proposition of law and economics [called the Coase Theorem] that portrays people as bargaining to mutual advantage from whatever starting points the legal system has bestowed on them."²¹

When Ellickson studied real disputes, however, he determined that "contrary to standard law-and-economics analysis, in many contexts legal entitlements do not function as starting points for bargaining."²² Economist Lester C. Thurow similarly posits that "[s]ocial arrangements are not determined by economics—there are many possibilities at any point in time—but whatever the arrangements, they have to be consistent with economic realities."²³ Although Thurow's statement may seem to be one of common sense, the idea that anything other than pure economics and its resultant allocative efficiency dictates (or should dictate) society's structure is relatively new to linear-thinking, supply-and-demand, neoclassical economists. In 1993, however, Professor Robert W. Fogel won a Nobel Prize in economics for questioning the deep-seated economic assumption of the role that efficiency plays in the world.²⁴ As Fogel stated: "It would be a nice world if efficient processes were moral. I don't think that's been the history of the 19th and 20th Centuries. There is such a thing as morality, and morality is higher than economics."²⁵

Kane, *supra*, at 179. For a case study on the "FSLIC Debacle" explaining, as an example of business-legal adaptation, the regulatory and legislative response to the 1980s collapse of the Federal Savings and Loan Insurance Corporation, see *id.* at 186-89.

20. ROBERT C. ELICKSON, *ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES* at vii (1991).

21. *Id.*

22. *Id.* at viii.

23. THUROW, *supra* note 14, at 33.

24. R.C. Longworth, *Nobel in Economics: Four-peat for U of C: Co-Winner Robert W. Fogel—Pioneer in 'Cliometrics'—Is Fourth Consecutive Faculty Member at the School to Win the Nobel Prize for Economics*, CHI. TRIB. (Evening Ed.), Oct. 12, 1993, at 1.

25. *Id.* (quoting economist Robert W. Fogel); see also ZBIGNIEW BRZEZINSKI, *OUT OF CONTROL: GLOBAL TURMOIL ON THE EVE OF THE TWENTY-FIRST CENTURY* at x (1993) (stating that "ultimately it is ideas that mobilize political action and thus shape the world"). I subscribe to the thinking of Francis Fukuyama, who wrote that "[w]e can think of neoclassical economics as being, say, eighty percent correct." FRANCIS FUKUYAMA, *TRUST: THE SOCIAL VIRTUES AND THE CREATION OF PROSPERITY* 13 (1995). Fukuyama further explains:

Substantial empirical evidence confirms that markets are indeed efficient allocators of resources and that giving free rein to self-interest promotes growth. The edifice of free

2. A Brief Survey of the Change Forces

a. The End of Communism

The end of communism, and the “victory” of liberal democracy and the market economy, are together identified by economists and futurists as one of the great economic events of our time that continues to send economic and political shock waves throughout the world. Indeed, the fall of communism was hailed as the “end of history” by author Francis Fukuyama in his controversial 1992 book entitled *The End of History and the Last Man*. In explaining what he meant by that ominous phrase, Fukuyama writes:

Both Hegel and Marx believed that the evolution of human societies was not open-ended, but would end when mankind had achieved a form of society that satisfied its deepest and most fundamental longings. Both thinkers thus posited an “end of history”: for Hegel this was the liberal state, while for Marx it was a communist society. . . . It meant . . . that there would be no further progress in the development of underlying principles and institutions, because all of the really big questions had been settled.²⁶

Fukuyama further posits that “[a] liberal revolution in economic thinking has sometimes preceded, sometimes followed, the move toward political freedom around the globe.”²⁷ Other commentators, however, have disagreed

market economics is, to repeat, about eighty percent right, which is not bad for a social science and substantially better than its rivals as the basis for public policy.

But the totality of the intellectual victory of free market economic theory in recent years has been accompanied by a considerable degree of hubris. . . . The laws of economics . . . they argue, apply everywhere . . . and do not admit significant cultural variations in their application.

Id. at 17.

Fukuyama notes, however, that Adam Smith’s “other major work besides *The Wealth of Nations* was *The Theory of Moral Sentiments*, which portrays economic motivation as highly complex and embedded in broader social habits and mores.” *Id.* at 18. Charles Handy similarly observes:

It is not always remembered that Adam Smith not only wrote *The Wealth of Nations*, the bible of capitalism, but also and, in his view more importantly, *A Theory of Moral Sentiments*, in which he argued that “sympathy,” a proper regard for others, was the basis of a civilized society. Markets, for wealth and efficiency, need to be balanced by sympathy, for civilization.

CHARLES HANDY, BEYOND CERTAINTY: THE CHANGING WORLDS OF ORGANIZATIONS 20 (1996).

26. FRANCIS FUKUYAMA, *THE END OF HISTORY AND THE LAST MAN* at xii (1992).

27. *Id.* at xiii-xiv.

with Fukuyama's analysis that institutional "progress" has reached an end-stage.²⁸

What has the virtual end of communism meant? Politically, according to Thurow, "[e]conomics is pushing nations [including communist nations] to disintegrate and regions to integrate simultaneously."²⁹ He further notes that "[t]he earthquake that ended communism sent 1.9 billion people tumbling into the capitalistic world."³⁰ This "earthquake" has touched and concerned individual employees, the availability of resources, and the consumer markets. At base, the 1.9 billion additional free market players have increased the size of and competition within world markets. Concerning such increased competition, he states: "[w]hy should anyone pay an American physics Ph.D. \$75,000 per year when a Nobel Prize winner can be employed in the old Soviet Union for \$100 per month? Scientific wages have already started to respond to what is effectively a new cheap source of highly skilled labor."³¹

The fall of communism has also released huge supplies of natural resources into world markets. For example, "[i]n 1993, 1.6 million metric tons of aluminum left the old Soviet Union All across the capitalistic world people were closing down smelters or asking their governments for protection."³² The effect of flooding the world's commodity markets might be a loss of power by those nation-states that traditionally enjoyed world market dominance. Also, as Thurow points out, nineteenth-century imperial Russia was at one time the "world's largest producer and exporter of grain products."³³

In addition to the fall of communism in the former Soviet Union, the economic thaw in China has unleashed a huge world market demand. Futurist John Naisbitt likens China's economic thaw to the gold rush: "Companies are flooding into China with a fervor that might be compared to America's gold rush in the 1840s."³⁴ The fact that China is already the

28. While noting that the end of history, in terms of the end-state of political and institutional evolution, has not been reached, Zbigniew Brzezinski argued that the pace of historic events will accelerate:

History has not ended but has become compressed. Whereas in the past, historical epochs stood out in relatively sharp relief, and one could thus have a defined sense of historical progression, history today entails sharp discontinuities that collide with each other, condense our sense of perspective, and confuse our historical perceptions.

BRZEZINSKI, *supra* note 25, at ix-x.

29. THUROW, *supra* note 14, at 63.

30. *Id.* at 43.

31. *Id.* at 45.

32. *Id.* at 44 (footnote omitted).

33. *Id.*

34. JOHN NAISBITT, GLOBAL PARADOX: THE BIGGER THE WORLD ECONOMY, THE MORE POWERFUL ITS SMALLEST PLAYERS 195 (1994).

world's third largest economy³⁵ indicates that it is capable of competing aggressively in the world's markets. And it should compete well: "China boasts a million millionaires, almost all of whom come from the ranks of its 18 million entrepreneurs. Many insist that that figure is grossly understated"³⁶ To underscore the point:

Everywhere, but particularly in urban centers, young people ask the same question of each other. "Have you put out to sea?" . . . [T]he Chinese name for this entrepreneurial phenomenon is *xaihai jingshang*—literally translated, "to the ocean to do business." Plunging into the sea . . . [this] oft-repeated phrase refers to an individual's willingness to give up the security of a government-assigned job Today, entrepreneurs are heroes³⁷

It remains to be seen whether the fall of communism signaled the end of history in terms of the end of macro scale political and institutional evolution. Communism's demise and China's economic thaw, however, have contributed to a general climate of uncertainty in the world's markets in which law firms, lawyers, and their clients compete. While those forces have been a factor in some apocalyptic predictions, no one can foretell with certainty the significance or long-term effects of the "end of communism." The spread of capitalism that which followed the end of communism, however, is undoubtedly a significant economic force, with perhaps, environmental effects.³⁸

35. *Id.* at 180.

36. *Id.* at 182.

37. *Id.* at 183.

38. The fear is that more resources will be used and that as consumption of those resources rises so will pollution and shortage. If historical patterns repeat themselves, as the new millennium nears, these and other fears should increase. Illustratively, on the fifth day of the David Koresh-Branch Davidian standoff at Waco, Texas, the *Washington Post* stated that "[t]he United States has become a land echoing with the rumble of apocalyptic prophecy. . . . The anticipation extends across religious lines." Charles Krauthammer, *Apocalypse, With and Without God*, *TIME*, Mar. 22, 1993, at 82. Krauthammer further observed that "it also extends *beyond* religious lines" by stating that:

With the end of the cold war, nuclear apocalypticism has gone out of fashion. The vacuum is amply filled by the eco-catastrophists. . . . In the '70s, the Club of Rome predicted, with hilarious imprecision, a coming doomsday of uncontrollable pollution, wild overpopulation and resource depletion (by 1992, for example, no oil).

Id.

The failure of past predictions, however, does not necessarily mean the *current* predictions are wrong; at best, apocalyptic predictions add an emotional exclamation point to uncertain times. For further reading regarding some of the reasons for fallacious doomsday predictions, see CHARLES MAURICE & CHARLES W. SMITHSON, *THE DOOMSDAY MYTH: 10,000 YEARS OF ECONOMIC CRISES* (1984), and Julian L. Simon, *Why Do We Hear Prophecies of Doom*

b. The Shift to a Knowledge-Based Society

In addition to a general movement from communism to capitalism, the world's economy is also undergoing a shift from a form of capitalism that is based upon the traditional factors of production—land, labor, capital, and entrepreneurial skill—to one based on knowledge as accessed, manipulated, or applied through technology. Indeed, information is fast becoming the stock-in-trade of capitalists. Professor Peter Drucker states that the manipulation and use of knowledge has evolved through three transitional phases. The first such transitional stage was the Industrial Revolution of the late eighteenth and early nineteenth centuries, which “was driven by a radical change in the meaning of knowledge. In both West and East, knowledge had always been seen as applying to being. Then, almost overnight, it came to be applied to *doing*. It became a resource and a utility.”³⁹

The second phase in the manipulation of knowledge began around 1880 and continued until around 1950. Drucker labels this period the “Productivity Revolution” and defined it as a time when knowledge was applied to work itself rather than to the invention of machines.⁴⁰ “The application of knowledge to work explosively increased productivity.”⁴¹ What Drucker means by “the application of knowledge to work” was epitomized by the observations of Frederick Taylor, who believed that “skilled work” did not exist and that, rather, only one class of undifferentiated “work” existed.⁴² “According to Taylor’s system of ‘Scientific Management,’ all work can be analyzed the same way. Any worker who is then willing to do the work the way analysis shows it should be done . . . [deserves] a ‘first-class wage’”⁴³ Of course, between analysis and performance was training, and Drucker asserts that training was probably the area of management where Taylor had his “greatest impact.”⁴⁴

The third transitional phase in the manipulation and use of knowledge, termed the “Management Revolution,” occurred after World War II.⁴⁵ Rather than applying knowledge to machines and mechanical processes or to the work of one worker, the Management Revolution organized the work

From Every Side, THE FUTURIST, Jan.-Feb. 1995, at 19, 19-23. For a concise account of the economic predictions of economists Malthus and Ricardo, see ROBERT L. HEILBRONER, THE WORLDLY PHILOSOPHERS: THE LIVES, TIMES, AND IDEAS OF THE GREAT ECONOMIC THINKERS (1953), which is a true classic of economic history.

39. PETER F. DRUCKER, POST-CAPITALIST SOCIETY 19 (1993).

40. *Id.* at 20.

41. *Id.* at 37 (footnote omitted).

42. *Id.* at 35.

43. *Id.*

44. *Id.* at 37.

45. *Id.* at 20.

of all the workers and machines into one efficient organization through the application of knowledge to knowledge.⁴⁶ This change was a bit ephemeral because there have always been “bosses” who, whether they were slave owners or kings, controlled the factors of production. Historically, however, “[m]anagement as a discipline [for optimally organizing the traditional economic factors of production] only emerged after World War II.”⁴⁷ While the traditional factors of production were still important, knowledge became the predominant factor. As Drucker states, “[l]and, labor, and capital are important chiefly as restraints. Without them, even knowledge cannot produce; without them even management cannot perform. But where there is effective management . . . we can always obtain the other resources That knowledge has become *the* resource . . . is what makes our society ‘post-capitalist.’”⁴⁸ Drucker agrees with futurist Alvin Toffler, therefore, about the importance of knowledge as a factor of production:

Apart from the fact that no business could open its doors if there were no language, culture, data, information, and know-how, there is the deeper fact that of all the resources needed to create wealth, none is more versatile than these. In fact, knowledge (sometimes just information and data) can be used as a replacement for other resources.

Knowledge—in principle inexhaustible—is the ultimate substitute.⁴⁹

According to Toffler, during Drucker’s post-capitalist society, “we are totally reorganizing the production and distribution of knowledge.”⁵⁰ Such knowledge applied to information, therefore, makes things such as “just-in-time” inventory management systems possible. Just-in-time systems work by “substituting” the new most important factor of production, knowledge, for another factor, the magnitude of capital needed to maintain the large amounts of inventory required for manufacturing. According to Toffler, one Italian manufacturer was able to “cut a startling 60 percent from his inventory costs.”⁵¹ The manufacturer, whose experience is not unique, “attributes this massive saving to better information.”⁵² Presumably, the information was made better by its timely compilation and analysis, both of which were in turn made possible because of dramatic advances in computer and telecommunication technology. Indeed, Professor Lewis D. Solomon

46. *Id.* at 42.

47. *Id.* at 43.

48. *Id.* at 44-45.

49. ALVIN TOFFLER, POWERSHIFT: KNOWLEDGE, WEALTH, AND VIOLENCE AT THE EDGE OF THE 21ST CENTURY 86 (1990).

50. *Id.* at 85.

51. *Id.* at 89.

52. *Id.*

has called these advances in computers and telecommunication technology the "microelectronic revolution."⁵³

Changes in technology also have increased the amount and quality of information available from independent third-party sources. Toffler illustrates one result of the information explosion by explaining the demystification of American medical doctors who not that long ago wrote prescriptions in Latin and closed medical conferences to the public.⁵⁴ Now, "[w]ith a personal computer and a modem, anyone from home can access data bases like Index Medicus, and obtain scientific papers . . . and, in fact, collect more information about a specific ailment or treatment than the ordinary doctor has time to read."⁵⁵

The force that technology has applied in causing economic change should not be underestimated. Fukuyama, for example, argues convincingly that science and technology cumulatively give history its coherence and its "directionality."⁵⁶ And Drucker provides a striking illustration of the directionality effect that technology has had on the historical creation of some of society's greatest institutions: "The stirrup made it possible to fight on horseback . . . [and therefore] the knight remained an invincible 'fighting machine.'"⁵⁷ A horse and knight, however, required economic support and, according to Drucker, this need for economic support led to the creation of the first "military-agricultural complex."⁵⁸ It is logical that in the

53. Lewis D. Solomon, *The Microelectronics Revolution, Job Displacement, and the Future of Work: A Policy Commentary*, 63 CHI.-KENT L. REV. 65, 65 (1987); cf. NAISBITT, *supra* note 34, at 53 (discussing the "telecommunications revolution").

54. TOFFLER, *supra* note 49, at 8.

55. *Id.*

56. FUKUYAMA, *supra* note 26, at xiv.

57. DRUCKER, *supra* note 39, at 23.

58. *Id.* Before the stirrup was the chariot:

The adoption of the war chariot and the imposition of the power of war charioteers throughout the centres of Eurasian civilisation in the space of some 300 years is one of the most extraordinary episodes in world history. How did it come about? It depended on many developments - in metallurgy, woodworking, tanning and leatherworking, and the use of glues, bone and sinew - but above all on the domestication and improvement in physique of the wild horse.

JOHN KEEGAN, *A HISTORY OF WARFARE* 155 (1993). Furthermore:

The historian Stuart Piggott . . . has suggested that a light chariot with two spoked wheels appeared suddenly and almost simultaneously throughout a 'technological *koine*' which embraced all the lands of civilisation. . . . [T]he appearance of such a chariot cannot have failed to be revolutionary

. . . [T]he chariot led to the emergence of a chariot-warrior group, skilled fighters who monopolised the use of their specialised and extremely expensive vehicles, together with complementary weapons, such as the composite bow, and who dominated an entourage of secondary specialists

Id. at 158-59.

same way that technology such as microelectronics has affected history's directionality, it will also affect the future's direction.⁵⁹

Most of the knowledge that Drucker describes is "highly specialized,"⁶⁰ like the knowledge used by neurosurgeons, engineers, chemists, accountants, and lawyers. These specialized knowledges reverse the workplace control hierarchy because workers own and control their specialized knowledges.⁶¹ Because of this shift, the unique abilities of individual workers are more highly valued, and "the basic unit of work will shift from the job to blended task positions such as 'team member.'"⁶² This shift will result in what one business consultant has called "gold collar" workers who "will need to be paid more than managers."⁶³ According to this consultant, "two significant but bimodal labor categories will emerge: the completely unskilled worker lacking even the ability to read and write; and the gold-collar worker, with a skill level so great that he or she becomes invaluable."⁶⁴ It is the value of such gold-collar workers that, in part, led Naisbitt to posit his ultimate global paradox: "The bigger the world economy, the more powerful its smallest players."⁶⁵

The importance of knowledge and the leverage of technology has led to some of the most chilling intermediate-term doomsday forecasts because of the pressure on education and the costs associated with developing technological infrastructure. Moreover, these forces and their related policy imperatives at least aggravate the increasingly bipolar nature of individual incomes. The costs of educating and training knowledge workers are very large. Both Thurow and Drucker emphasize the role of the G.I. Bill of Rights in developing a post-World War II middle class.⁶⁶ Indeed, Thurow bluntly asserts that "[g]overnment investments in education created the middle class."⁶⁷ After stating that higher rates of return were earned "on skill investments . . . [than] investments in plant and equipment,"⁶⁸ Thurow starkly notes that "support for public egalitarian skill investment is being slashed."⁶⁹

59. See, e.g., Theodore Eisenberg & Kevin M. Clermont, *Courts in Cyberspace*, 46 J. LEGAL EDUC. 94 (1996).

60. DRUCKER, *supra* note 39, at 45-46.

61. *Id.*

62. See "Gold-Collar" Workers and Their Pay, THE FUTURIST, Mar.-Apr. 1995, at 57, 57 (quoting Sandra O'Neal, Towers Perrin consultant and national employee pay practice leader, from *Work and Pay in the Twenty-First Century*, AM. COMPENSATION ASS'N NEWS, July 1994).

63. *Id.* at 58.

64. *Id.* at 57-58.

65. NAISBITT, *supra* note 34, at 12.

66. See DRUCKER, *supra* note 39, at 136; THUROW, *supra* note 14, at 76-77.

67. THUROW, *supra* note 14, at 76-77 (footnote omitted).

68. *Id.* at 77 (footnote omitted).

69. *Id.* (footnote omitted).

The bipolar income distribution is undeniably growing. For example, “[f]rom 1973 to 1994, America’s real per capita GDP rose 33 percent, yet real hourly wages fell 14 percent and real weekly wages 19 percent for nonsupervisory workers (those males and females who do not boss anyone else).”⁷⁰ During the same approximate period “top-to-bottom inequalities rose by a third,”⁷¹ and during the 1980s the average CEO pay for *Fortune* 500 companies went “from 35 to 157 times that of the average production worker.”⁷²

According to another writer, a study of the “U.S. economy’s transformation from steam to electro-mechanical technology,” which occurred in the late nineteenth and early twentieth centuries,⁷³ provided three insights relevant to the transition to a knowledge-based society. First, it can take “50 to 70 years—to fully mature and assimilate the productive potential of a fundamental new technology.”⁷⁴ Second, during the first half of such periods of transformation, “general levels of economic performance and prosperity plunge before they go up.”⁷⁵ Based on this historical model, “by 2010 to 2015, the United States will become a mature information-intensive economy and surpass the [prior peak] levels of general prosperity.”⁷⁶ Third, “the really beneficial impacts of a new technology” should arrive in the United States “in the next five to 10 years.”⁷⁷ Unfortunately, as that same author noted, “[u]ntil then . . . we will be passing through a painful period of diminished national prosperity.”⁷⁸ One historical account of this last transformation was written by Nell Irvin Painter, in which he recounts incidents of social upheaval.⁷⁹ The parallels between the technological transitions of then and now seem striking, and according to Thurow: “Ahead lies a period . . . of punctuated equilibrium when the skill sets required in

70. *Id.* at 24 (footnote omitted).

71. *Id.* at 21 (footnote omitted).

72. *Id.* (footnote omitted).

73. David Pearce Snyder, *The Revolution in the Workplace: What’s Happening to Our Jobs?*, THE FUTURIST, Mar.-Apr. 1996, at 8, 13 (citing STANFORD CTR. FOR ECON. POL’Y RES., COMPUTER AND DYNAMO: THE MODERN PRODUCTIVITY PARADOX IN A NOT TOO DISTANT MIRROR (1990)).

74. *Id.*

75. *Id.*

76. *Id.*

77. *Id.*

78. *Id.*

79. See NELL IRVIN PAINTER, *STANDING AT ARMAGEDDON: THE UNITED STATES 1877-1919* at xi (1987). Painter’s history chronicles the period between 1877 and 1919 and helps place the upheaval into both context and order of magnitude. Painter recounts the violent emergence of organized labor, deadly race riots, lynchings, the birth of the Ku Klux Klan and “armies” of homeless persons. He also chronicles the entry of women into the workforce in record numbers and the beginning of the “red scare” after the Russian Worker’s Revolt.

the economy will be radically different from those needed in the past.”⁸⁰ Thus the “end” of communism and a shift to a knowledge-based economy are two forces changing the current working environment in business. The next section will discuss another force: changing demographics.

c. The Changing Demographics of Population Growth, Mobility, and Aging

Simply put, the world’s population is growing, moving, and getting older.⁸¹ Growth in population, per se, is not necessarily bad until it bumps into Adam Smith’s “Law of Population,” which posits that an oversupply of the commodity of labor will be balanced with the demand for labor, primarily through an unemployment-induced increase in infant mortality.⁸² Such an increase in infant mortality may be substituted by some sort of birth control method or policy, such as the “one child per family” policy instituted in China in the 1970s.⁸³ However, both infant mortality and government-imposed family planning policies are humanistically and politically unpalatable as alternatives. China’s policy notwithstanding:

The World Bank projects an increase in the world’s population from the current 5.7 billion to 8.5 billion by 2030. What is frightening about the World Bank’s forecast is not so much the 50 percent increase, an extra 2.8 billion people, but that 2 billion of those people will be born in countries where daily earnings are less than \$2. These countries are simply not going to be able to make the investments that are necessary to make water available to feed their populations, much less educate them⁸⁴

This empirical population growth appears to conflict with Smith’s “Law of Population,” which, if correct, should operate to slow population growth rates in poor countries. Thurow responds to this paradox by using India as an example. India’s birth and death rates were nearly balanced in 1941, but because of relatively inexpensive new medicines, and some basic public health measures, the mortality rate dropped nearly eighty percent by 1991.⁸⁵ As a result, and contrary to the “Law of Population,” India will probably

80. THUROW, *supra* note 14, at 77.

81. *Id.* at 88.

82. See Thomas Earl Geu & Martha S. Davis, *Work: A Legal Analysis in the Context of the Changing Transnational Political Economy*, 63 U. CIN. L. REV. 1679, 1687-88 (1995). For a very good historical correlation between work, management theory, and religion in the United States, see PAUL BERNSTEIN, *AMERICAN WORK VALUES: THEIR ORIGIN AND DEVELOPMENT* (1997).

83. See THUROW, *supra* note 14, at 89.

84. *Id.* at 88 (footnote omitted).

85. *Id.* (footnote omitted).

become the "most populous country early in the twenty-first century."⁸⁶ Thus, the strength of the infant mortality rate as a labor market equilibrium-restoring factor has been greatly reduced by forces that did not exist at the time Smith wrote. Indeed, those forces have combined to increase the world's population by reducing the mortality rates of even the poorest countries.

In addition to the direct stresses increased world population places on infrastructure, it also may change our culture and our humanity. Historian Nell Irvin Painter portrays the shocking effect that overpopulation had on one person's humanity:

Mother Mary Harris Jones, an outspoken, Irish-born, seventy-two-year-old union organizer familiar with mining families, remembered helping miners' wives bury their children. "The mothers could scarce conceal their relief at the little ones' deaths," she wrote. The mother was invariably pregnant with another child, "destined, if a boy, for the breakers [the mines]; if a girl, for the silk mills."⁸⁷

Besides its growth, the mobility of the world's population, in terms of immigration, is also staggering. Such immigration is probably, in part, a result of growing populations in, and flight from, poor countries. France alone, for example, has become home to three million immigrants.⁸⁸ In addition, "by 1995, 9 percent of all Americans had been born abroad . . . including 25 percent of all Californians,"⁸⁹ and, "[e]ven Japan . . . is now believed to have more than one million illegal guest workers."⁹⁰

A new kind of immigrant, the telecommuting guest worker, may also play a role in future patterns of immigration and employment. Through technology, it is now possible for firms located in the United States to electronically link to the \$100-per-month, Russian Nobel Prize-winning physicist, in her Russian apartment, for piece work or consulting.⁹¹ Not all telecommuting or actual immigrants have been so skilled. As a point of historical reference, George F. Baer, a coal company president, bluntly

86. *Id.*

87. PAINTER, *supra* note 79, at 185. Between sixty and eighty-eight percent of Americans were poor or very poor in 1900, although "businesses seemed to be getting bigger and more powerful every day." *Id.* at 176. "The people who bore the brunt of hard times reacted with angry strikes and riots that seemed to threaten modern civilization." *Id.* at xi.

88. THUROW, *supra* note 14, at 96 (footnote omitted).

89. *Id.* at 91-92 (footnote omitted).

90. *Id.* at 93 (footnote omitted).

91. *See, e.g., id.* at 45.

stated in 1901: "miners 'don't suffer . . . why they can't even speak English.'" ⁹²

The final demographic change factor for current discussion is that the population is aging. While today there are 4.5 persons working to pay for every pensioner in the United States, ⁹³ projections indicate that by 2030 there will be only 1.7 workers to support every pensioner. ⁹⁴ Furthermore, there are now more than three times as many people over the age of sixty-five on a percentage basis than in 1900. ⁹⁵ According to Thurow, by 2003 "the welfare state plus interest payments (most accumulated in recent years to make payments to the elderly) . . . will take 75 percent" of total tax revenue. ⁹⁶ The increasing amount of the budget devoted to the elderly puts a squeeze on government funding for such things as "investments in infrastructure, education, and research and development . . . [which are, in the aggregate,] down from 24 to 15 percent of the federal budget in twenty years." ⁹⁷ Even though these are shocking numbers, the United States is in better shape than certain European countries. For example, "Poland gives more of its GDP to its elderly (21 percent) than any other country on earth." ⁹⁸

Something must give, especially in the United States where "there are fewer poor people among the elderly [on a percentage basis] than any other [age] group in the population." ⁹⁹ The elderly are organized, politically active, and "so powerful [in defending their United States government provided economic entitlements, whether they need them or not,] that no

92. PAINTER, *supra* note 79, at 182 (footnote omitted).

93. THUROW, *supra* note 14, at 97 (footnote omitted).

94. *See id.* (footnote omitted).

95. *Id.* at 96-97 (footnote omitted).

96. *Id.* at 97 (footnote omitted).

97. *Id.* at 98 (footnote omitted).

98. *Id.* (footnote omitted). Interestingly, Poland is one of the most economically successful of the old Warsaw Pact countries, and its success has led commentators to ask:

How did Poland pull it off? Political instability, ironically, was probably helpful to the economy. No party in Poland today is powerful enough to exert a stranglehold over the country. Perhaps because of that, there was no secret mass privatization by means of vouchers, such as occurred in the Czech Republic; neither was there a dismantling of state-owned industry on the German trusteeship model, as was the case in Hungary. Polish politicians for the most part left state-owned businesses to their fate. State enterprises flew without a net, enjoying neither a comforting layer of bureaucracy nor the illusory protection of a trustee foundation. "We have looked into the abyss," says Jerzy Kleer, a professor at Warsaw University, "and it has made us strong." The many new private enterprises also were allowed to operate in freedom. This chaotic procedure paid off—today, two thirds of the gross domestic product originates in the private economy.

Antje Sirleschtov & Hans Jakob Ginsburg, *Miracle on the Vistula*, WORLD PRESS REV., Sept. 1997, at 29.

99. THUROW, *supra* note 14, at 98.

political party wants to tangle with them.”¹⁰⁰ Thurow goes so far as to say that “[d]emocracy is going to meet its ultimate test when it has to confront the economic demands of the elderly.”¹⁰¹

Although the elderly are projected to be an economic force that will help shape the future, the doom predicted as a result of the aging population is not inevitable. Like most economic prophecies, including Smith’s “Law of Population,” doomsday predictions largely extrapolate current trends and do not necessarily account for unforeseen and non-linear forces of change. As author John Maddox noted in 1972:

[A]lthough these prophecies [including population growth and the resulting scarcity of resources] are founded in science, they are at best pseudo-science. Their most common error is to suppose that the worst will always happen. And, to the extent that they are based on assumptions as to how people will behave, they ignore the ways in which social institutions and humane aspirations can conspire to solve the most daunting problems.¹⁰²

Illustratively, planning by aging individual workers already may have fundamentally altered the dynamics of free market economies in ways that the ideologies of socialism and communism could not have. For example, workers now own in the aggregate, through vested pension and profit sharing plans, a significant portion of the productive capacity in the United States. Even though “baby boomers are saving only one third of what they would need to in order to have the standard of living in retirement that their parents currently enjoy,”¹⁰³ and even though “[e]mployers are getting out of the pension business,”¹⁰⁴ the fact remains that there never have “been such enormous pools of money as are now held in developed countries by institutional investors, primarily pension funds.”¹⁰⁵ According to Drucker: “We have no social, political, or economic theory that fits what has already

100. *Id.* at 101.

101. *Id.* The elderly are but one group, an identifiable “piece,” within “democracy.” Taken together, all such pieces form a collective picture, like a mosaic, instead of blending into a single color, thus:

What is emerging, as we’ll see, is no longer a mass democracy but a highly charged, fast-moving “mosaic democracy” that corresponds to the rise of mosaics in the economy, and operates according to its own rules. These will force us to redefine even the most fundamental of democratic assumptions.

Mass democracies . . . do not yet know how to cope with mosaics. This leaves them doubly vulnerable to attack by what we might call “pivotal minorities.”

TOFFLER, *supra* note 49, at 251-52.

102. JOHN MADDOX, *THE DOOMSDAY SYNDROME* at vii (1972).

103. THUROW, *supra* note 14, at 108 (footnote omitted).

104. *Id.*

105. DRUCKER, *supra* note 39, at 74-75.

become reality.”¹⁰⁶ That reality is that wage earners now own capital funds sufficient in the aggregate to exert significant control over corporate managements.¹⁰⁷

These funds have not yet chosen to exercise their power for the current benefit of wage earners, although they theoretically could do so. “According to Marx . . . all capital is accumulated through expropriation of the wage earner. . . . Obviously this definition does not fit the capital of the pension funds”¹⁰⁸ Further, in recent years there has been academic discussion from both economic and legal scholars on “stakeholder” rights as opposed to shareholder rights.¹⁰⁹ This discussion likely aided the passage of corporate take-over legislation in the 1980s and early 1990s.¹¹⁰ More recently, “William Bennett and other conservative thinkers have underscored the need for a more virtuous and moral society.”¹¹¹

A good place to start would be for institutional investors to consider the rights of others. For instance, pension funds, which now own approximately 30 percent of the corporate stock, represent millions of workers. It is highly ironic then that fund managers have eagerly supported actions that lead to the lay offs of thousands of workers Since the time of the robber barons, American Society has been moving away from the position that owners have unlimited rights. The injustices that this mind-set produced were things that American society decided it wanted to avoid. Unfortunately, the trend seems to have been reversed during the past decade¹¹²

d. The Emergence of a Global Economy

The advances in technology and communication (collectively termed “the microelectronic revolution”) have created a global economy based on knowledge and its instantaneous transmission. As previously discussed, all of the factors of production except knowledge may be purchased in the first instance. Further, the disintegration of the old Soviet Union unleashed both

106. *Id.* at 78.

107. *See id.* at 78-79.

108. *Id.* at 78.

109. *Id.* at 79. *See generally* ROBERT W. HAMILTON, CASES AND MATERIALS ON CORPORATIONS INCLUDING PARTNERSHIPS AND LIMITED PARTNERSHIPS ch. 9A-B (5th ed. 1994).

110. *See* Andrei Shleifer & Robert W. Vishny, *The Takeover Wave of the 1980s*, 4 J. APPLIED CORP. FIN. 49 (1991).

111. William Beaver, *Corporations' Misguided Obsession with Shareholder Wealth*, 95 BUS. & SOC. REV. 49, 53 (1996).

112. *Id.*

material resources and knowledge trapped within its borders by communism. Moreover, China is now entrepreneurial and, by the sheer size of its market, contributes to the globalization of the economy.

The existence of a global economy was one assumption upon which Naisbitt's *Global Paradox* was based.¹¹³ Perhaps the first evidence of a global economy was the 1974 oil crisis. Between the summer and the end of that year, gasoline prices increased by 50 percent in the United States because of a successful international oil embargo instituted by the Organization of Petroleum Exporting Countries (OPEC).¹¹⁴ In pre-embargo 1973, inflation in the United States was at 3.4 percent; by 1975, inflation had risen to a record-shattering 12.3 percent.¹¹⁵ "Eight years of wage increases had been wiped out in [the] two [years following the embargo]."¹¹⁶

The oil crisis was a wake-up call. What followed is what Professors Barry and Irving Bluestone call an "import revolution."¹¹⁷ They base this term on percentage increases in select "[i]mports as a [s]hare of U.S. [d]omestic [m]arket" between 1960 and 1986.¹¹⁸ For example, in 1960, imports made up 5.6 percent of the domestic consumer electronics market, but by 1986, imports comprised 68 percent of domestic sales.¹¹⁹ In 1991 it was estimated that "fully 70 percent of all U.S. manufacturing output . . . faces direct foreign competition."¹²⁰

Suddenly, American manufacturers had to compete with the world for both natural resources and for its own domestic market. Indeed, this new global competition generally "eliminated any semblance of 'administered pricing' or monopoly practice" in the U.S. automobile market.¹²¹ For example, while same-market domestic competitors might follow GM's price increases, foreign competitors, like Volkswagen, might not.¹²² Even the Bluestones note, however, that the American consumer was not deeply disturbed by the "abundance of better and cheaper products."¹²³ The most popular reason they give for the emergence of the new global competitiveness was the completion of industrial retooling programs by post-World War II Western Europe and Japan:

113. NAISBITT, *supra* note 34, at 12.

114. See BARRY BLUESTONE & IRVING BLUESTONE, *NEGOTIATING THE FUTURE: A LABOR PERSPECTIVE ON AMERICAN BUSINESS* 60 (1992) (footnote omitted).

115. *Id.* at 61 (footnote omitted).

116. *Id.*

117. *Id.* at 63.

118. *Id.* (citation omitted).

119. *Id.* (citation omitted). For the same period, domestic market share of automobiles, apparel, and machine tools attributable to import sales increased from 4.1% to 31%, from 1.8% to 50%, and from 3.2 % to 50%, respectively. *Id.* (citation omitted).

120. *Id.* at 64 (footnote omitted).

121. *Id.* at 66.

122. *Id.*

123. *Id.* at 65.

Western Europe and Japan had taken the better part of a full generation to rebuild their war-torn economies. But as they did, they put in place the most modern of technologies, introduced the most sophisticated of high-tech products, and developed labor-management-relations systems that helped boost the productivity of their industries. . . .

In one sector after another, the Europeans and the Japanese launched lower-priced products to compete with those made in America.¹²⁴

Nonetheless, competition is a two-way street. Even if international economic competition is a zero-sum game (a position with which I disagree), the United States has not always been the economic loser. For example:

European firms have moved their expansionary activities to other parts of the world where it is not so costly to hire and fire people. Mercedes-Benz and BMW moved to the American Alabama and South Carolina—not by accident the places in America with the fewest government regulations and the lowest social charges. European employment stagnates¹²⁵

Increased global competition in the finished-product markets is merely a part of the story of the interdependent global economy. The unassembled component parts markets, for example, is highly interdependent. As noted by Robert Reich (before he became Secretary of Labor), significant portions of the \$20,000 paid to General Motors for a Pontiac Le Mans go to component suppliers, assemblers, and engineers in such places as South Korea, Japan, Germany, Taiwan, Singapore, Britain, and Barbados.¹²⁶ Reich further observes that:

The point is this: In the new global economy, nearly everyone has access to the Big Ideas and the machines and money to turn them into standardized products, at about the same time, and on roughly the same terms. The older industrial economies have two options: They can try to match the wages for which workers elsewhere are willing to labor. Or they can compete on the basis of how quickly and well they can transform ideas into incrementally better products.¹²⁷

124. *Id.* at 61.

125. THUROW, *supra* note 14, at 129.

126. TOM PETERS, LIBERATION MANAGEMENT: NECESSARY DISORGANIZATION FOR THE NANOSECOND NINETIES 303 (1992) (citing Robert Reich, *Brainpower, Bridges, and the Nomadic Corp.*, NEW PERSPECTIVES Q., Fall 1991, at 67).

127. TOM PETERS, THRIVING ON CHAOS: HANDBOOK FOR A MANAGEMENT REVOLUTION 21 (1988) (citing ROBERT B. REICH, TALES OF A NEW AMERICA (1987)) (emphasis omitted).

According to Reich, both knowledge and innovation are needed in order to compete in the global economy, and according to Drucker, there are three types of innovative knowledge. The first type of innovative knowledge is "improvement of process, product, [or] service."¹²⁸ The second type is "the continuous exploitation of existing knowledge to develop new and different products, processes, and services."¹²⁹ The third type is "genuine *innovation*," which is the discovery of new knowledge that can be applied commercially.¹³⁰

Reich's emphasis of both the power of ideas and competitive imperative implicates a role for domestic economic policy.¹³¹ One recent critic of what he calls "one of [America's] . . . cyclical romances with a utopian view of laissez-faire" is Robert Kuttner.¹³² Kuttner introduces his book as follows: "This book begins with the hypothesis that a capitalistic system is a superior form of economic organization, but even in a market economy there are realms of life where markets are imperfect, inappropriate, or unattainable."¹³³ According to Kuttner there are different "kinds" of efficiency and the market economy is extremely good at "allocative efficiency," that is, allocating capital and resources to reflect the purchases that, in aggregate, people want.¹³⁴ It is also good at reducing the cost (or price) of goods through competition.¹³⁵ The latter attribute is both virtue and vice because, again as reported by Kuttner, it can lead to under investment in *innovation*.

At base, Kuttner is neo-Schumpeterian in his economic leanings, reflecting the hypothesis that innovation requires investment in research and development; and, "ruinous" allocative price competition cannibalizes any potential profit above production expenses that would allow for such investment in research and development:

This departure [from classical economic theory by Schumpeter] permitted the producer [through product differentiation] to earn the slightly excess profits that economists call "rents." In the view of Schumpeter and his followers, rents were what inducted innovation and financed technical advance and ultimately growth. Thus, [these slight] departures from

128. DRUCKER, *supra* note 39, at 185.

129. *Id.*

130. *Id.*

131. For a more general discussion of industrial policy, see generally WAYNE M. MORRISON, THE ECONOMICS OF EXPORT PROMOTION, CONG. RES. REP. (CRS Ord. No. 93-354 E., 1993).

132. ROBERT KUTTNER, EVERYTHING FOR SALE: THE VIRTUES AND LIMITS OF MARKETS 4 (1996).

133. *Id.* at 5-6.

134. *See id.* at 197.

135. *Id.*

perfect competition were not to be regretted, but celebrated. They drove economic progress.¹³⁶

Ultimately this view became known as the “Schumpeterian Hypothesis.” Actually it appears that Schumpeter had a basic disagreement with the neoclassic economists over the reasonableness of one of the assumptions that helped define their inquiry. The assumption was that of “static equilibrium”:¹³⁷

Schumpeter wrote presciently, “Whereas a stationary feudal economy would still be a feudal economy, and a stationary socialist economy would still be a socialist economy, stationary capitalism is a contradiction in terms.” Its very essence, as the economic historian Nathan Rosenberg wrote, echoing Schumpeter, “lies not in equilibrating forces, but in the inevitable tendency to depart from equilibrium” every time an innovation occurs.¹³⁸

Building upon Schumpeter’s ideas, economist Paul Romer has advanced an “Endogenous Growth Theory.”¹³⁹ Romer’s theory emphasizes innovation and suggests that “the emerging economy is based on ideas more than objects, and that . . . entirely different institutional arrangements, pricing systems and so on [are necessary] to get an efficient allocation of ideas.”¹⁴⁰ Romer has described his New Growth Theory as follows:

It stands in opposition to the growth theory that emerged in the 1950s and 1960s. People understand that the development of technology is something that is subject to a lot of randomness — that if you try to make a discovery, you might succeed and you might not. But then they slip into

136. *Id.* at 194.

137. *Id.* at 195.

138. *Id.* at 195-96. Schumpeter lived from 1883 to 1950. Peter Robinson, *Paul Romer*, FORBES ASAP, June 5, 1995, at 66, 68. As in introductory forward to the interview Robinson writes:

According to management expert Peter Drucker, the work of Paul Romer is so important to the field of economics that Romer, only 39, has already laid the groundwork for a Nobel Prize. Stanford Economics Professor Paul Krugman calls Romer “arguably the most influential theorist of the 1980’s.” *The Economist* has stated that for years to come, “Mr. Romer’s approach is likely to form the basis of mainstream thinking.”

Id. at 67.

139. KUTTNER, *supra* note 132, at 197.

140. Robinson, *supra* note 138, at 66.

saying that if the individual cannot control technology, then technology is like manna from heaven, something completely outside our control.

Now that logical step is clearly wrong. . . . For you as an individual, the chances of finding gold might be so small that it would seem like pure serendipity if you actually did. But if you have 10,000 people out looking for gold . . . the chances of finding gold greatly improve.¹⁴¹

Assuming the existence and operation of forces pushing toward an interdependent, dynamic, and innovation-driven global economy raises

141. *Id.* at 68. The veracity of the underpinnings of neoclassical economic thought continue to be questioned:

Questions concerning the origin of neoclassical theory are among the most basic, yet least satisfactorily resolved, questions in the study of economic thought. Disagreement has notably concerned two issues: whether the theory was "revolutionary" or the product of a gradual evolution, and whether the theory arose from developments internal or external to the discipline of political economy. Most often, historians of economic thought have been "gradualist" and to varying degrees "internalist," i.e., they have characterized the development of neoclassical theory as a slow accumulation of "essential" features in the decades prior to the 1870s and have viewed these features as *analytical* developments arising from *within* the framework of the existing discipline of political economy. Neoclassical theory is thus frequently portrayed as a "discovery"—a truth that, given sufficient time and acumen, would have emerged inevitably.

A strong externalist and non-gradualist account is that of Philip Mirowski . . . who argues that the formulation of neoclassical theory in the 1870s was a "wholesale" metaphysical appropriation of the analytical structure of mid-nineteenth century physics. Neoclassical economics is thus seen not as a "discovery," but as an arbitrary imposition onto social reality of a paradigm taken from an alien field of knowledge. The upshot of Mirowski's account is that if the physics metaphor is developed consistently in economics (as it must be to maintain the mathematical integrity of the model), incongruous results emerge. In particular, the transplantation of a central principle of mid-nineteenth century physics, that of conservation of energy, into economics leads to the absurd analogy of a constant "sum" of potential utility plus expenditure—a problem that is an aspect of the "integrability problem"

Mathieu J. Carlson, *Mirowski's Thesis and the "Integrability Problem" in Neoclassical Economics*, 31 J. ECON. ISSUES 741, 741-42 (1997). For a marvelous history of the turbulence of economic ideas, see DANIEL YERGIN & JOSEPH STANISLAW, *THE COMMANDING HEIGHTS: THE BATTLE BETWEEN GOVERNMENT AND THE MARKETPLACE THAT IS REMAKING THE MODERN WORLD* (1998).

The phrase "commanding heights" was first used by Vladimir Illyich Lenin in November 1922 to defend his decision to reintroduce certain small free-markets back into the economy: Responding with his old acerbity and sarcasm, despite his physical enfeeblement, Lenin defended the program. Although the policy allowed markets to function, he declared, the state would control the "commanding heights," the most important elements of the economy. And that, Lenin assured any who doubted him, was what counted. All this was before collectivization, Stalinism, and the total eradication of private markets in the Soviet Union.

YERGIN & STANISLAW, *supra*, at 12.

difficult questions. One of those questions is whether it is possible to effectively implement national policies in the highly fractionalized multipolar global economy. The answer to that question will help form the regulatory context in which businesses must exist in the next millennium.

e. The Evolution of a "Multipolar" World

This perception of ebbing economic power has to take account of the fact that the overwhelming superiority of the American economy in the years following World War II grew out of extraordinary circumstances that could not be sustained. The American lead was bound to erode as other countries recovered from the devastation of the war and rebuilt their industrial base.

-The MIT Commission on Industrial Productivity (1989)¹⁴²

Thurow explains that the two major historical reasons for America's "post-World War II leadership of global capitalism" were that (1) "[e]very-one [in the rest of the world] had to buy from or sell to Americans, since they were the only people with money to spend and had almost two thirds of the world's industrial production capacity"¹⁴³ and (2) the United States had the only economy that could fund a military counter-balance to the communist military threat.¹⁴⁴ As a result, the American dollar became the world's reserve currency.¹⁴⁵ Both of the historical reasons for leadership by the United States have weakened because the retooling of the rest of the world is complete with the fall of Soviet communism.¹⁴⁶

Thurow also posits that America's loss of world economic leadership and the move toward "free" (market-valued) dollars threatens the American dollar's status as the "world's reserve currency of choice."¹⁴⁷ Thus, to the extent that "[d]ollars [might] have less international purchasing power and more dollars have to be spent" and because "[t]o some extent influence is bought, and . . . buying influence becomes more expensive for Americans," America's ability to lead or merely influence the new multipolar global economy will diminish.¹⁴⁸ America's lost global economic leadership is not

142. BLUESTONE & BLUESTONE, *supra* note 114, at 60 (emphasis omitted).

143. THUROW, *supra* note 14, at 139 (footnote omitted).

144. *See id.*

145. *See id.* at 149.

146. *Id.*

147. *See id.* (footnote omitted).

148. *Id.* at 148. Relatedly, Thurow noted that the Marshall Plan also was necessary to spark capitalistic expansion in Europe. *See id.* at 140. Ironically, the United States

a result of low growth in the United States economy,¹⁴⁹ rather, it is a result of faster growth in the economies of the rest of the world.¹⁵⁰

The shift away from a bipolar global economy dominated by the United States is evidenced by the "new" issues confronting GATT, issues that are not subject to bilateral negotiation as were the "old" GATT tariff issues.¹⁵¹ One of these issues is the trade surplus Japan accumulated as a result of its closed domestic market policies that remained in place despite attempts by the United States to negotiate for open market policies.¹⁵² The existence of the multipolar global economy can also be seen in the growth of regional trading blocks like NAFTA, which resulted from the perceived need to combine the markets of multiple countries.¹⁵³ In this multipolar global economy, the economy of the United States, while still a major force, does not possess the near dictatorial power it once had.¹⁵⁴

What force, then, binds the world's multipolar economic players together? Is it liberal democracy and a free market economy, or is it law? For several reasons, the answer is probably neither. First, as explained by Thurow, neither democracy nor capitalism are unifying ideologies in the same sense as, for example, religion. Rather, they are process ideologies that "stress the individual and not the group. . . . Neither imposes an obligation to worry about the welfare of the other" or the "common good."¹⁵⁵ Second, there are several reasons why "law" probably will not fill the global economic leadership void that has resulted from the new

partially funded the post-World War II turnaround of certain European economies that are now its competitors, by devoting two percent of its Gross Domestic Product (GDP) to the Marshall Plan. *Id.* (footnote omitted). Comparatively, the United States now devotes only a paltry three-tenths of one percent of its GDP to economic, humanitarian, and military aid. *Id.* (footnote omitted).

149. *Id.* at 24 (stating that "from 1973 to 1994, America's real per capita GDP rose 33 percent") (footnote omitted).

150. *See generally id.* at 139-52 (explaining the dynamics of the new world economy).

151. *Id.* at 152. GATT is an acronym for the international General Agreement on Tariffs and Trade. JOHN MICKLETHWAIT & ADRIAN WOOLDRIDGE, *THE WITCH DOCTORS: MAKING SENSE OF THE MANAGEMENT GURUS* 217 (1996).

152. THUROW, *supra* note 14, at 152.

153. *Id.* at 153. NAFTA is the acronym for the North American Free Trade Agreement. *Id.* at 380.

154. *Id.* at 152-53.

155. *Id.* at 159. As Brzezinski states:

Democracy may be the West's central contribution, but democracy is a vessel that has to be filled with content. The democratic political process, the constitutional system, the sovereignty of law are all peerless guarantees for the preservation and enhancement of individual rights and of human personality. But democracy by itself does not provide the answers to the dilemmas of social existence and especially to the definition of the good life. That role is played by culture and philosophy—which together generate the values that motivate and shape social behavior.

BRZEZINSKI, *supra* note 25, at 75.

multipolar world economy. One reason why law probably cannot fill that void is that "[i]n the most rigorous expressions of capitalistic ethics, crime is simply another economic activity that happens to have a high price (jail) if one is caught."¹⁵⁶ That is, "[t]here is no social obligation to obey the law,"¹⁵⁷ and therefore, the individual or nation-state may be willing to gamble in order to reap the high expected return on illegal activity.

Another reason why law probably cannot hold together the free market economy is the practical one of jurisdiction and authority. Whose laws will apply in the absence of treaties or a dominant world economic power? The days when any one nation could provide meaningful protection to its citizens or trading partners through its laws are fast eroding, in large part because of the microelectronic revolution:

The era of national government regulation is simply over. Activities go to where they are unregulated and often that relocation can happen without anyone physically moving. Insurance and financial activities are electronically performed in Bermuda or the Bahamas, while almost all of those doing the activities are still sitting in their offices in New York or London.¹⁵⁸

If neither economic and political ideology nor law will unify a multipolar world economy, how will the world look? What or who will exercise control? Prognosticators have argued that several different types of associations like those formed by trading partners will fill the void.¹⁵⁹ Drucker, for example, notes that certain associations like "regionalism" and "tribalism" will become important unifiers in a transnational multipolar world.¹⁶⁰ The uncertainty brought by those associations may be a positive

156. THURLOW, *supra* note 14, at 159.

157. *Id.*

158. *Id.* at 129. As an example of the pervasiveness of such disunifying "relocations" in the new global economy, *The Economist*, the British business magazine where "offshore company specialists" advertise, contained an advertisement boasting "a choice of over 750 ready-made companies available" in the Bahamas, Belize, the British Virgin Islands, Delaware, Gibraltar, Hong Kong, Hungary, Ireland, the Isle of Man, Jersey, Madeira, Mauritius, Nevis, and Seychelles. *THE ECONOMIST*, June 15, 1996, at 95. Another advertisement prominently displayed the "Delaware LLC" as one of several entity choices available. *Id.*

159. See DRUCKER, *supra* note 39, at 141-56 (discussing associative economic aggregations based upon the concepts of regionalism and tribalism); Toffler, *supra* note 49, at 228-32 (discussing business association paradigms ranging from wheel-and-spoke arrangements to a mosaic system built on inter-entity relationships).

160. DRUCKER, *supra* note 39, at 156.

development, even though most prognosticators view the multipolar world with trepidation.¹⁶¹

Central planning economies were supposed to avoid the “‘chaos’ of the market-place” by replacing it with “intelligent top-down planning.”¹⁶² Unfortunately, top-down planning encounters the overwhelming calculation of having to make millions of economic decisions.¹⁶³ The positive view is that what works for capitalism might work for the entire world. The negative view is expressed by questions like “who will pay for programs like Medicare in a global economy?” Or, in a competitive global economy, can any nation-state or regional alliance afford to tax for any social expenditure when taxes are additional costs of production that will drive production and the wages it produces elsewhere?

Whether for good or bad, regionalism and tribalism will probably play an increasing role on the world stage. While the growth of regionalism is self-evident, its forecasted growth may not be so apparent. A single prediction served notice of a future already in progress:

In 1991, then President George Bush articulated a vision of a free-trade area stretching from Anchorage to Tierra del Fuego. Bush lost the election, but nothing will alter the course that already had been set. Before the 1990s are over there will exist a pan-Americas free trade zone from the North Pole to the South Pole. . . .

What is evolving around the world is not protectionist trading blocs designed to isolate any given region from the rest of the international players, but economic alliances that promote development within regions, while making all borders more porous.¹⁶⁴

Of course, this creates a spiraling (and self-fulfilling) feedback loop between economic regionalism and economic nationalism. Thus, regionalism has developed in the multipolar global economy because “[t]he more the economies of the world integrate, the less important are the economies of

161. See, e.g., TOFFLER, *supra* note 49, at 419-20. Alvin Toffler indicated one reason why economic uncertainty is generally viewed with trepidation when he predicted that Socialism would fail due to the “calculation problem” inherent in command economies. *Id.* at 419. The calculation problem is, generally, how can a command economy consistently answer the millions of questions required for its efficient functioning, like “[h]ow many shoes and what sizes should a factory in Irkutsk make?” or “[w]hat price-relationships should be set between carburetors and cucumbers?” *Id.*

162. *Id.* (citing generally LUDWIG VON MISES, HUMAN ACTION (1959)).

163. *Id.* at 140.

164. NAISBITT, *supra* note 34, at 234.

countries and the more important are the economic contributions of individuals and individual companies.”¹⁶⁵

The definition of tribalism is somewhat murkier. Generally, “[t]ribalism is the belief in fidelity to one’s own kind And this belief is flourishing.”¹⁶⁶ As nations disintegrate and the world becomes more fractional, tribalism becomes an expression of the human need to bond with those who are similar or are similarly situated.¹⁶⁷ While tribes have traditionally been thought of as homogenous ethnic, cultural, or religious groups, bonding into multiple tribes for multiple purposes may be the coming norm: “[o]ne person can, with the freedom that comes with security, be simultaneously a Houstonian, a Texan, an American, an accountant, and Chinese. But if you are a Muslim in dangerous Bosnia, you are overwhelmingly a Muslim.”¹⁶⁸

Perhaps paradoxically, new technology such as e-mail “makes us more tribal at the same time it globalizes us.”¹⁶⁹ Illustratively, on a given accounting issue, an accountant in Poland may have more in common with an American accountant than a Polish school teacher. Through technology, these accountants may communicate and form a tribe of sorts. “With the new emphasis on what is tribal in a world increasingly global, the New Age mantra ‘Think Globally, Act Locally’ is turned on its head. It is now: Think Locally, Act Globally.”¹⁷⁰

In summary, the multipolar world economy has accelerated the incidence and magnitude of economic interdependency and encouraged regionalism. The multipolar world economy has also encouraged individuals to form tribes of common interest that extend across national borders. Similarly, it has encouraged nation-states to form regional alliances. Thus, any attempt to understand the dynamics of the multipolar global economy will require the acknowledgment of regionalism and tribalism as component parts of that economy. Perhaps most importantly, the emergence of the multipolar global

165. *Id.* at 228.

166. *Id.* at 23. Several academic articles have discussed the changing nature of the economy and business from the workers’ perspective. See Geu & Davis, *supra* note 82, at 1679, 1681; Lewis D. Solomon, *Humanistic Economics: A New Model for the Corporate Constituency Debate*, 59 U. CIN. L. REV. 321, 321 (1990) [hereinafter Solomon, *Humanistic Economics*]; Lewis D. Solomon, *Perspectives on Human Nature and Their Implications for Business Organizations*, 23 FORDHAM URB. L.J. 221, 222-29 (1996) [hereinafter Solomon, *Perspectives on Human Nature*]. For a concise summary of the philosophy of work, see John Dupré & Regenia Gagnier, *A Brief History of Work*, 30 J. OF ECON. ISSUES 553 (1996), and REG THERIAULT, *HOW TO TELL WHEN YOU’RE TIRED: A BRIEF EXAMINATION OF WORK* (1995), which speaks directly of the globalizing nature of the Industrial Revolution by saying that “industrial work largely resembles itself wherever you choose to observe it, under whatever ideology, throughout the world.” *Id.* at 12.

167. See NAISBITT, *supra* note 34, at 23.

168. *Id.*

169. *Id.*

170. *Id.* at 24.

economy and its components have limited the power of individual nation-states, and consequently, what they can unilaterally accomplish on the world's economic stage.

One example of the types of difficulties and changes that national economies, particularly the U.S. national economy, may expect to encounter in the future is the controversy generated by the new "international standards." The ISO controversy also illustrates the transition from a polar world economy to a multipolar world economy in which the United States is only one of several poles, none of which are controlling. This controversy is illustrated by the following testimony by the American Society of Mechanical Engineers on "The Increasing Importance of International Standards . . . and the Impact of ISO 14000" given before the subcommittee on Technology of the House Committee on Science:

For decades, U.S. voluntary consensus standards developed by organizations such as the American Society of Mechanical Engineers, the American Society for Testing and Materials, and the American Petroleum Institute have been used on a global basis and are de facto international standards. Unfortunately, there appears to be a growing belief or inference that the only international standards are those published as International Standards Organization standards. Rigid adherence to ISO as the sole administrative means for developing international standards will diminish U.S. influence in both standards development and ultimately in the international marketplace.¹⁷¹

171. *The Increasing Importance of International Standards to the U.S. Industrial Community and the Impact of ISO 14000: Hearing Before the Subcomm. on Technology of the House Comm. on Science*, 104th Cong. 56, 59 (1996) (statement of witness June Ling). These international standards include an independent assessment, for example, of whether "an organization chart exists which shows management structure and relationships," and whether "[m]anagers conduct regular review meetings to assess the quality system and ensure its continued effectiveness." PERRY L. JOHNSON, *ISO 9000: MEETING THE NEW INTERNATIONAL STANDARDS* 156 (1993). The "ISO 9000" standards themselves are of interest because they are intended to assess a firm's quality management, as measured through certified, or alternatively, merely implemented, quality processes, of the business organizations that attempt to, or in fact do, implement them. *Id.* at 7.

The acceptance, or at least awareness of ISO 9000 by the management mainstream, and perhaps by society-at-large, is evidenced by a chapter cartoonist and humorist Scott Adams devotes to it in *The Dilbert Principle*:

If your company is not involved in something called "ISO 9000" you probably have no idea what it is. If your company *is* involved in ISO 9000 then you definitely have no idea what it is. . . . I can't figure it out either. . . .

My theory: A group of bored Europeans had a few too many Heinekens and decided to play an elaborate prank on the big companies of the world. This prank came to be known as ISO 9000, so named because of the number of beers that were consumed that night.

At the very least, the high level of controversy generated by the ISO 9000 standards illustrates the uncertainty created in a multipolar world economy when voluntary and non-uniform standards are promulgated without the force of law.

The dynamic macroeconomic forces of the end of communism, the shift to a knowledge-based society, the changing world demography, the emergence of a global economy, and the evolution of a multi-polar world help define the field on which macroeconomic players (including individuals and businesses) compete and cooperate. The next section of this article describes how those players are changing themselves to remain viable in the next millennium.

B. From Macro to Micro: Reactions at the Business Level

1. Introduction

So far, this article has surveyed macro forces that have changed the global economy and created an uncertain environment within which such activities as entity selection, organizational planning, client counseling, and legislative drafting take place. In confluence, these macro forces have resulted in what Toffler labels "a new system for wealth creation" and "a new economic metabolism."¹⁷² Robert Barner identified seven common themes that consultants generally consider when they advise clients on business-level reactions to the macro change forces. These themes are: (1) "The Virtual Organization"; (2) "The Just-in-Time Work Force"; (3) "The Ascendancy of Knowledge Workers"; (4) "Computerized Coaching and Electronic Monitoring"; (5) "The Growth of Worker Diversity"; (6) "The Aging Work Force"; and, (7) "The Birth of the Dynamic Work Force."¹⁷³ While each of these themes will be discussed, "the virtual organization" and "the birth of the dynamic work force" will be emphasized.¹⁷⁴

SCOTT ADAMS, *THE DILBERT PRINCIPLE: A CUBICLE'S-EYE VIEW OF BOSSES, MEETINGS, MANAGEMENT FADS & OTHER WORKPLACE AFFLICTIONS* 240 (1996). For a more general discussion of the ISO 9000 debate, see Richard Brown, *Does America Need ISO 9000?*, *MACHINE DESIGN*, June 6, 1994, at 70.

172. TOFFLER, *supra* note 49, at 233.

173. Robert Barner, *The New Millennium Workplace: Seven Changes That Will Challenge Managers—And Workers*, *THE FUTURIST*, Mar.-Apr. 1996, at 14-18.

174. Historically, suggestions for reforming business organizations were made in response to America's Industrial Revolution around the turn of the last century. Between 1910 and 1914, for example, the impetus for economic change was so pervasive that: "Even larger numbers of Americans began to question standpattism [sic] and accepted, with Theodore Roosevelt, the idea that the nation's economic system operated unfairly or at least inefficiently. But the broadening consensus that change was necessary did not include agreement on the direction or extent of these changes." PAINTER, *supra* note 79, at 279-80.

2. A New System for Wealth Creation

According to Toffler, a "new system for wealth creation," has emerged from the confluence of macroeconomic changes, and it includes, *inter alia*, a shift away from a national industrial economy toward a super-symbolic economy made up of small operating units.¹⁷⁵ Technological advances in computers and telecommunications, in large part, made this shift possible. The new system for wealth creation also implicates a "new economic metabolism":

When we compare the overall pace of First Wave or agrarian systems of wealth creation with that of Second Wave or industrial systems, it becomes clear that smokestack economies run faster than traditional agricultural economies. Wherever the industrial revolution passed, it shifted economic processes into a higher gear.

... [T]he new system of wealth creation ... operates at speeds unimaginable even a generation or two ago. Today's economic metabolism would have broken the system in an earlier day.¹⁷⁶

This accelerated pace, according to Toffler, "implies a powerful new law of economics." Toffler states that "[w]hen the pace of economic activity speeds up, [with the result that] each unit of time comes to be worth *more* money."¹⁷⁷

The need for speed is one of the most important factors influencing microeconomic business behavior. Indeed, Tom Peters included the word nanosecond in the subtitle of one of his books,¹⁷⁸ wherein he quoted David Vice, vice-chairman of Telecom, as stating that: "[t]he nineties will be a decade in a hurry, a nanosecond culture. There'll be only two kinds of

An example in the United States of large-scale business organization reformation was the "traditional workplace contract" that emerged after World War II and gave labor "a measure of control over wages, but not corporate investment." BLUESTONE & BLUESTONE, *supra* note 114, at 43. In response to similar stimuli for business organization reformation, certain German companies allow limited statutorily-mandated employee representation for corporate governance and oversight purposes. See JONATHAN P. CHARKHAM, KEEPING GOOD COMPANY: A STUDY OF CORPORATE GOVERNANCE IN FIVE COUNTRIES 22 (1994).

175. TOFFLER, *supra* note 49, at 234. Toffler also analogizes to the human circulatory system and biological metabolism to illustrate the speed of a system. *Id.* at 226. The powerful analogy, to human physiology is reminiscent of a school of economics in the mid-eighteenth century devised by Francois Quesnay (a physician) and known as "Physiocracy." See HEILBRONER, *supra* note 38, at 49.

176. TOFFLER, *supra* note 49, at 234.

177. *Id.*

178. See PETERS, *supra* note 126.

managers: the quick and the dead.”¹⁷⁹ More concretely he includes a quote from another consultant which illustrates how one company has both driven, and reacted to, Toffler’s new system for wealth creation: “Since 1979, when Sony Corp. invented the Walkman, the company has developed 227 different models, or about one every three weeks.”¹⁸⁰

Another example given by Peters is the Titeflex company. According to Peters:

Simpson [former Titeflex President] stressed the V-word—velocity”—again and again. He remembered a GE aerospace customer arriving at Springfield in desperate pursuit of a special order that would have normally taken six weeks, at best in the past. The customer left, customized part in hand, at 1 p.m. the same day.¹⁸¹

When asked how he accomplished such velocity, Simpson stated that Titeflex “automated chaos.”¹⁸² How business “automates chaos” seems to be the key question and the balance of this part of the essay will suggest answers from business consultants. It is organized around the seven themes delineated in the introduction of this part.

3. The Virtual Organization

The concept of the virtual organization is a helpful concept in understanding the needs of business in the changing world economy. Some sort of connection between the current business revolution and the virtual organization was expressly acknowledged in the 1992 book *The Virtual Corporation*:

This electrifying pace of change has no precedent in human memory. To speak of total efficiency improvements in the billions is literally beyond human imagination. Yet this is the power source at the heart of modern life. . . .

The goal of this book is to examine these transformations to see how they interrelate with one another toward a larger purpose—and in the process put forth a vision of the corporation of the twenty-first century.¹⁸³

179. *Id.* at 59.

180. *Id.*

181. *Id.* at 70.

182. *Id.* at 66.

183. WILLIAM H. DAVIDOW & MICHAEL S. MALONE, *THE VIRTUAL CORPORATION: STRUCTURING AND REVITALIZING THE CORPORATION FOR THE 21ST CENTURY* 2 (1992).

The virtual organization developed as a result of customer demands for a "virtual product," which is "one that adapts in real time to the customer's changing needs."¹⁸⁴ The added "connotations of interaction and adaptability,"¹⁸⁵ have led one group to expand the virtual organization label to "the agile virtual corporation."¹⁸⁶

The Titeflex company is an example of a virtual organization where workers are deployed on a project basis. Each order is treated uniquely and is fed into an "administrative cell" consisting of a contracts administrator, applications engineers, a quality engineer, a draft person, and a clerical support person.¹⁸⁷ This "team" is totally responsible for the product, and if other in-house services are required, it "contracts" with those in-house service providers.¹⁸⁸

Another example of a "virtual corporation" is Agile Web, Inc., a network of nineteen small manufacturing companies in Northeastern Pennsylvania that "communicate through e-mail and electronic data interchange."¹⁸⁹ The purpose of Agile Web, Inc., is to help "small manufacturers compete when large companies consolidate their supplier bases."¹⁹⁰ Obviously, different types of organizations have different structural and management needs. Nonetheless, the goals of virtual organizations are to react quickly, to innovate, and to possess the capability to focus the resources necessary to complete projects with high quality and on time.

Regardless of the organizational details of an individual virtual organization, Charles Handy suggests that "[w]e are all beginning to see more signs of these 'virtual organizations'. . . . The organization exists but you can't see it. It is a network, not an office."¹⁹¹ According to Handy, "[a]lliances

184. *Id.* at 6.

185. *Id.* at 4. How will a virtual corporation look?:

There is no single answer. To the outside observer, it will appear almost edgeless, with permeable and continuously changing interfaces between company, supplier, and customers. From inside the firm the view will be no less amorphous, with traditional offices, departments, and operating divisions constantly reforming according to need. Job responsibilities will regularly shift, as will lines of authority—even the very definition of employee will change, as some customers and suppliers begin to spend more time in the company than will some of the firm's own workers.

Id. at 5-6.

186. See Ann E. Conway Stilson, *The Agile Virtual Corporation*, 22 DEL. J. CORP. L. 499 (1997).

187. See PETERS, *supra* note 126, at 65.

188. *Id.*

189. Stilson, *supra* note 186, at 508 (quoting Beth W. Orenstein, *NE PA Companies Take Part in "Agile" Manufacturing Firm*, NE. PA. BUS. J., Aug. 1995, at 9, 9).

190. *Id.* For yet another example of a "virtual corporation," see David Greising, *The Virtual Olympics: How Billy Payne Built a \$1.7 Billion Company Out of Thin Air*, BUS. WK., Apr. 29, 1996, at 64.

191. HANDY, *supra* note 25, at 212.

... are notoriously difficult to manage” and “[r]ather like marriages, each one is unique, to be lived with rather than managed, better built on mutual respect and shared interests than on legal documents and tight controls.”¹⁹² Thus, “[v]irtual organizations are built on trust,” but “trust is the rub.”¹⁹³

In his book *Trust: The Social Virtues and the Creation of Prosperity*, Francis Fukuyama asserts that “one of the most important lessons we can learn from an examination of economic life is that a nation’s well being, as well as its ability to compete, is conditioned by a single, pervasive cultural characteristic: the level of trust inherent in the society.”¹⁹⁴ According to

192. *Id.* at 39.

193. *Id.* at 212.

194. FUKUYAMA, *supra* note 25, at 7.

Professor Frank Pommersheim has noted the fragile cultural relationship between institutions and individual rights within a specific cultural context. American Indian law and society, for example, has for centuries struggled with the idea of sovereignty, vis-à-vis the United States, and therefore, would seem to be fertile ground for future research in complexity. Concerning this relationship between institutions and individual rights in the Native American cultural context, Pommersheim advises:

Many Native American societies find this development [the growth of individual rights relative to institutions] threatening, because it is potentially invasive of that fundamental web of relationships defined by family, community, and culture that holds individuals together.

Tribal court jurisprudence needs to heed this distinction. . . . The model of dominant jurisprudence seems at times to imagine society as consisting of thousands of particles defined only by quasi-physical laws. This view of society as an entropic system is clearly at odds with the view of most indigenous communities that define their existence in terms of *relatedness* among individual and groups, not in terms of the rights of isolated, contingent individuals.

Since law both reflects and constructs reality, such views are not without effect on the social and cultural fabric of tribal life. For example . . . in a contract dispute there are deep cultural implications in the potential tribal court decision to render a judgment involving not only money damages or specific performance but a remedial performance of some kind—such as caring for a neighbor’s cattle or garden—in order to heal the relationship between the parties and to maintain the well-being of the community.

FRANK POMMERSHEIM, *BRAID OF FEATHERS: AMERICAN INDIAN LAW AND CONTEMPORARY TRIBAL LIFE* 116-17 (1995).

Thus, Indian law may well provide a microcosm for the study of complexity because it raises fundamental issues of both sovereignty and diversity. *Cf.* Jordan Burch, *How Much Diversity is the United States Really Willing to Accept?*, 20 OHIO N.U. L. REV. 957, 974-78 (1994). For related case studies in the context of international law, see HURST HANNUM, *AUTONOMY, SOVEREIGNTY, AND SELF-DETERMINATION: THE ACCOMMODATION OF CONFLICTING RIGHTS* (1990). For a more detailed philosophical discussion of the effect of too much or too little social order, similar to that posited by Fukuyama in his book *Trust*, *supra* note 24, but including as social order informal societal order, as well as more formal legal order, see DENNIS H. WRONG, *THE PROBLEM OF ORDER: WHAT UNITES AND DIVIDES SOCIETY* (1994). Interestingly, Wrong noted that “underneath these processes social order survives at least at a micro-sociological level—the level of families, small groups, and

Fukuyama, trust is essential to efficient operations:

If people who have to work together in an enterprise trust one another because they are all operating according to a common set of ethical norms, doing business costs less. Such a society will be better able to innovate organizationally, since the high degree of trust will permit a wide variety of social relationships to emerge. Hence highly sociable Americans pioneered the development of the modern corporation in the late nineteenth [century,] . . . just as the Japanese have explored the possibilities of network organizations in the twentieth.

By contrast, people who do not trust one another will end up cooperating only under a system of formal rules and regulations, which have to be negotiated, agreed to, litigated, and enforced, sometimes by coercive means. This legal apparatus, serving as a substitute for trust entails what economists call "transaction costs."¹⁹⁵

Finally, Fukuyama asserts that "[l]aw, contract, and economic rationality must . . . be leavened with reciprocity, moral obligation, duty toward community, and trust."¹⁹⁶

The term "organization," at least in the context of organizational behavior, includes non-business organizations such as the military. From a military perspective, the "corps" level of organization could be described as a virtual organization tailored to a specific mission while sacrificing as little responsive flexibility as possible.¹⁹⁷ Corps are designed to be flexible to

networks of interacting individuals cooperating in the pursuit of common goals. In at least this limited sense, social order is indestructible so long as human beings remain alive." *Id.* at 243.

195. FUKUYAMA, *supra* note 25, at 27. For a rather recent book that examines the history of economics and economic development and, by implication, its necessary component characteristics, see DAVID S. LANDES, *THE WEALTH AND POVERTY OF NATIONS: WHY SOME ARE SO RICH AND SOME ARE SO POOR* (1998).

196. *Id.* at 11. One way to view these relationships is to use a biological paradigm: Due to the creation of a legal system, I am able to enter into contracts. Because we can both do so, you and I can create a person that may live forever, the corporation, which takes on aims that survive and can even harm the interests of many of those who founded it. Thus the modern corporation is a collectively self-sustaining structure of roles and obligations that "lives" in an economic world, exchanges signals and stuffs, and survives or dies in ways at least loosely analogous to those of *E. coli*. *E. coli* is collectively autocatalytic and sustains itself in its world. The modern corporation also seems collectively autocatalytic. Both *E. coli* and IBM coevolve in their respective worlds.

KAUFFMAN, *supra* note 6, at 300.

197. See TOM CLANCY WITH GEN. FRED FRANKS, JR. (RET.), *INTO THE STORM: A STUDY IN COMMAND 140* (1997). To custom tailor a corps:

preserve as many deployment options and alternatives as possible, in large part because

[t]he battlefield is a chaotic place. If your side is less mired in chaos than your enemy's, *if your force is more agile and can respond more quickly to changing events, you have a big edge*. You do that through vision and sensing. If you can see your own units and the enemy better than your enemy can see you, then he is, relatively speaking, more entangled in confusion and chaos. You also have to see in your mind's eye what you cannot see physically. You have to know where and how to get the right information to form that vision.¹⁹⁸

Tom Peters sums up the basic concept of the virtual organization under what he termed "Fashion's Common Denominator":

Coherent, self-contained, multifunction, fully accountable, self-managed cells/clusters/teams/"businesses" of 2 to 35—supported, real time, by all the organization's (and appropriate outsiders') information and expert resources, on-call as needed; and fully empowered to do whatever it takes to serve/respond to the customer/other members of the value-adding chain.¹⁹⁹

Building such organizations requires a new or modified, organizational power structure. Toffler asserts a direct link between knowledge and organizational structure by saying that "the way we organize knowledge frequently determines the way we organize people—and vice versa."²⁰⁰ And "[w]hen knowledge was conceived of as specialized and hierarchical,

[T]he numbers and types of complete teams—or major command echelons to be included in the corps—are determined by examination of the factors of METT-T (or Mission, Enemy, Terrain, Troops available, and Time to accomplish the mission). Commanders look at these factors and compile the right mix of combat units (armored divisions, cavalry regiment, air defense, aviation brigade, artillery, and engineer), combat-support units (military police, military intelligence, and signal), and combat-service-support units (personnel, finance, medical, transportation, maintenance, supply, etc.) to give the widest range of options or combinations to accomplish anticipated missions.

Id. at 142.

198. *Id.* at 33 (emphasis added). Furthermore, "[i]f you can move around the battlefield faster than your enemy in the right combination of units, you effectively increase your own numbers and increase the number of directions from which you can hit the enemy. This is how you gain and maintain the initiative and win." *Id.*

199. PETERS, *supra* note 126, at 71.

200. TOFFLER, *supra* note 49, at 178.

businesses were designed to be specialized and hierarchical.”²⁰¹ The need for broadly disseminated information driven by competitive speed within a firm will “require enormous changes in the actual organization, [and] the way people are ranked and grouped.”²⁰² Inappropriate organizational structures may trap or stifle rapid information dissemination and innovation. For example, George Gilder describes an information trapping mechanism that exists in some organizational structures:

Firms that win by the curve of mind often abandon it when they establish themselves in the world of matter. They fight to preserve the value of their material investments in plant and equipment that embody the ideas and experience of their early years of success. They begin to exalt expertise and old knowledge, rights and reputation, over the constant learning and experience of innovative capitalism. They get fat. A fat cat drifting off the curve, however, is a sitting duck for new nations and companies getting on it.²⁰³

In fact, Gilder’s phrase “curve of mind” seems to directly implicate innovation, agility, and adaptability. Although this part of the article is concerned with microeconomics, or the economics of the firm, and business (as opposed to legal) planning and organization, a lesson on the risks attendant to the lack of innovation, agility, or adaptability might be gleaned from the sphere of national politics:

By 1989, Ligachev and the orthodox wing of the Communist Party came to blame Yakovlev, Gorbechev, and Shevardnadze for radicalizing perestroika to the point of creating a “bourgeois” state, for abandoning the “class approach” to politics, *for failing to provide a blueprint for the future*. “Some of our conservatives now say that a group of adventurers began to restructure things without a concept,” Yakovlev replied. “But imagine what would have happened if we’d just gone into an office and created an entire scheme. Marx did that and look what it led to! One should take things from life, and adjust them every day. Our whole trouble is that we are inert, we think in dogmas. Even if reality tells us to change things, we always check first in a book.”²⁰⁴

201. *Id.*

202. *Id.* at 179.

203. GEORGE GILDER, *MICROCOSM: THE QUANTUM REVOLUTION IN ECONOMICS AND TECHNOLOGY* 113 (1989).

204. DAVID REMNICK, *LENIN’S TOMB: THE LAST DAYS OF THE SOVIET EMPIRE* 298 (1993) (emphasis added). Further, in discussing the recent Ukrainian nationalization problem, Aleksandr Solzhenitsyn stated that: “Nothing is easier than stamping your foot and shouting: ‘That’s mine!’ It is immeasurably harder to proclaim: ‘You may live as you please.’” 3 ALEKSANDR I. SOLZHENITSYN, *THE GULAG ARCHIPELAGO 1918-1956: AN EXPERIMENT IN*

The organizational changes that businesses must make to become competitive in the global economy apply universally, without regard to whether they are large or small, a mature business or a start-up. The process of changing the way business works within an existing organization has spawned the term "reengineering." Michael Hammer and James Champy, authors of the seminal book on reengineering entitled *Reengineering the Corporation*, address the fundamental changes in the way businesses are organized.²⁰⁵ Starkly, the authors introduce their book as follows:

A set of principles laid down more than two centuries ago has shaped the structure, management, and performance of American businesses throughout the nineteenth and twentieth centuries. . . . [W]e say that the time has come to retire those principles and to adopt a new set. The alternative is for corporate America to close its doors and go out of business.²⁰⁶

LITERARY INVESTIGATION 45-46 (Harry Willets trans., Harper & Row 1978) (1976). Solzhenitsyn's quote is relevant to several aspects of virtual organizations because it implicates trust in others by letting organization members make their own decisions, which in turn addresses the organizational imperatives of decentralization. It also hints of respecting the knowledge of subordinates. Finally, the quote illustrates that the demise of communism, as an event, will be remembered as one of the principal animating features of the end of the millennium.

205. See MICHAEL HAMMER & JAMES CHAMPY, *REENGINEERING THE CORPORATION: A MANIFESTO FOR BUSINESS REVOLUTION* (1993). The scope of "reengineering" in the global economy is significant, and it appears to be far more than a fad. Rather, its popularity evidences that it may be a business necessity in the changing 1990s. For example, in a subsequent book, Champy states:

That study, "The State of Reengineering Report," was conducted in early 1994 by CSC Index, the strategic management consulting arm of the firm I head. Six hundred and twenty-one companies, representing a sample of 6,000 of the largest corporations in North America and Europe, completed an extensive questionnaire. The sample showed that fully 69 percent of the 497 American companies responding, and 75 percent of the 124 European, were already engaged in one or more reengineering projects, and that half of the remaining companies were thinking about such projects.

JAMES CHAMPY, *REENGINEERING MANAGEMENT: THE MANDATE FOR NEW LEADERSHIP 2* (1995).

206. *Id.* at 1. The United States Army is an example of an organization that has been reengineered:

[T]he Army . . . [has] long been very much aware of what other high-performing organizations also have learned—that information not only passes through the normal hierarchical chain of command, it flows in other ways to get quickly where it's needed. In order to take advantage of that fact, the Army needed to structure its own organizations and problem solving so that information flowed in ways that enhanced unit performance. Then the Army had to invest in technologies that promoted it.

CLANCY, *supra* note 197, at 508.

That the U.S. military forces deployed in the Gulf War were reengineered is evidenced by the fact that they "might well have been the finest in all of history, equipped with the best

Changing the principles of business organizations, however, is not the equivalent of changing the fundamental nature of the business or industry in which such businesses compete. Rather it is changing or replacing the processes businesses employ.²⁰⁷ The changes contemplated by reengineering, according to *Reengineering the Corporation*, include: combining several jobs into one;²⁰⁸ allowing workers to make decisions;²⁰⁹ performing tasks in a natural order;²¹⁰ allowing standard processes to be altered for varied customer needs;²¹¹ performing work where it makes the most sense;²¹² reducing checks and controls;²¹³ and providing a case manager as a single point of contact.²¹⁴ In sum, “[h]ybrid centralized/decentralized operations are prevalent”²¹⁵ in the reengineered forms of business organization; a form of organization which Handy analogized to federalism.²¹⁶

weapons, trained in the most realistic fashion, and led by men who’d learned the hard way why you have to get it right the first time.” *Id.* at xii.

207. HAMMER & CHAMPY, *supra* note 205, at 3.

208. *Id.* at 51-53.

209. *Id.* at 53.

210. *Id.* at 53-54.

211. *Id.* at 55-56.

212. *Id.* at 56-58.

213. *Id.* at 58-59.

214. *Id.* at 62-63.

215. *Id.* at 63-64.

216. HANDY, *supra* note 25, at 33. Handy asserts that applying the political principle of federalism to for-profit business organizations makes particular sense:

[I]t offers a well-recognized way to deal with paradoxes of power and control: the need to make things big by keeping them small; to encourage autonomy but within bounds; to combine variety and shared purpose, individuality and partnership, local and global, tribal region and nation-state, or nation-state and regional bloc.

Id. at 33-34. He also opined that “subsidiarity is the most important of federalism’s principles,” *id.* at 41, and that subsidiarity “is the reverse of empowerment,” *id.* at 42, because “[i]n a federal system, the center governs only with the consent of the governed,” *id.*

Decentralization is also becoming a common theme in both science and business. For example, Stuart Kauffman recounts hearing noted economist Sidney Winter speak on the topic of “Organizational Evolution”:

Organizations around the globe were becoming less hierarchical, flatter, more decentralized, and were doing so in the hopes of increased flexibility and overall competitive advantage. Was there much coherent theory about how to decentralize, I wondered. For I was just in the process of finding surprising new phenomena, a new edge-of-chaos story, that hinted at the possibility of a deeper understanding of how and why flatter, more decentralized organizations—business, political, and otherwise—might actually be more flexible and carry an overall competitive advantage.

KAUFFMAN, *supra* note 6, at 245-46.

Handy also asserted that a true federation fosters interdependence among the separate states. “In that sense a federation is different from a confederation, where the individual

In his book *The Fifth Discipline: The Art and Practice of the Learning Organization*, Peter M. Senge seems to agree with the increasingly important role decentralization will play in future business organizations by including "openness" and "localness" as attributes of his prototypical learning organization.²¹⁷ "Localness means moving decisions down the organizational hierarchy; designing business units where . . . local decision makers confront the full range of issues and dilemmas intrinsic in growing and sustaining any business enterprise."²¹⁸

Senge explained that "openness" includes both "participative openness [which] leads to people speaking out" and "'reflective openness' [which] leads to people looking inward."²¹⁹ "Reflective openness starts with the willingness to challenge our own thinking, to recognize that any certainty we ever have is, at best, a hypothesis about the world."²²⁰ While Senge use both localness and openness as prototypes for learning organizations,²²¹ he stresses that "'[t]he ability to learn faster than your competitors . . . may be the only sustainable competitive advantage."²²²

states yield no sovereignty to the center and try to need nothing from their neighbors." HANDY, *supra* note 25, at 43. Confederations, like the Commonwealth of Independent States in what used to be the Soviet Union, "fall apart." *Id.* at 44. Thus while decentralization may be an important process for many businesses to go through, Handy apparently suggested that organizations can overzealously pursue decentralization.

217. See generally PETER M. SENGE, *THE FIFTH DISCIPLINE: THE ART AND PRACTICE OF THE LEARNING ORGANIZATION* 273-301 (1990).

218. *Id.* at 287.

219. *Id.* at 277. The importance of localness and openness are directly related to "team learning," which was one of the organizational disciplines identified and discussed by Senge. *Id.* at 238. Senge discusses the concept of "dialogue and discussion" and its relationship to team learning by quoting physicist Werner Heisenberg:

In a remarkable book, *Physics and Beyond: Encounters and Conversations*, Werner Heisenberg (formulator of the famous "Uncertainty Principle" in modern physics) argues that "Science is rooted in conversations. The cooperation of different people may culminate in scientific results of the utmost importance." Heisenberg then recalls a lifetime of conversations with Pauli, Einstein, Bohr, and the other great figures who uprooted and reshaped traditional physics in the first half of this century. These conversations, which Heisenberg says "had a lasting effect on my thinking," literally gave birth to many of the theories for which these men eventually became famous. . . .

The IQ of the team can, potentially, be much greater than the IQ of the individuals. *Id.* at 238-39. Indeed, David Bohm, a leading quantum theory physicist, "is developing a theory and method of 'dialogue,' when a group 'becomes open to the flow of a larger intelligence.'" *Id.* at 239.

220. SENGE, *supra* note 217, at 277.

221. *Id.* at viii.

222. *Id.* at 4 (quoting head of planning for Royal Dutch/Shell, Arie de Geus, *Planning as Learning*, HARV. BUS. REV., Mar.-Apr. 1988, at 70, 70-74).

Senge defines the "learning organization," in terms loosely similar to reengineering, as follows:

The tools and ideas presented in this book are for destroying the illusion that the world is created of separate, unrelated forces. When we give up this illusion—we can then build "learning organizations," organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together.²²³

Reengineering organizations, however, is not an easy process, and is unique to each organization. While the process is not without risk, some consultants have suggested that it must be accomplished, if at all, in radical fashion.²²⁴ On the other hand, the goal of the reengineering process is easy to state because it, in many ways, is merely the remaking of an existing organization into a virtual organization. Whether an organization is virtual or reengineered:

Today, high-speed change requires equally high-speed decisions—but power struggles make bureaucracies notoriously slow. Competition requires continual innovation—but bureaucratic power crushes creativity. The new business environment requires intuition as well as careful analysis—but bureaucracies try to eliminate intuition and replace it with mechanical, idiot-proof rules.²²⁵

Tom Peters suggests that the existing organizational structure which most resembles a model business organization is the professional service firm,²²⁶ and he uses the professional service firm to illustrate the organizational attributes that are necessary for global competition.²²⁷ In addition, Peters acknowledges the following potential problems in reorganizing in ways similar to professional service firms: (1) "[c]ustomers lose confidence

223. *Id.* at 3.

224. Sardonicly, and from a cubicle's-eye view:

Reengineering a company is a bit like performing an appendectomy on yourself. It hurts quite a bit, you might not know exactly how to do it, and there's a good chance you won't survive it. But if it does work, you'll gain enough confidence to go after some of the more vital organs, such as that big red pumping thing.

SCOTT ADAMS, *THE DILBERT PRINCIPLE: A CUBICLE'S-EYE VIEW OF BOSSES, MEETINGS, MANAGEMENT FADS & OTHER WORKPLACE AFFLICTIONS* 279 (1996).

225. TOFFLER, *supra* note 49, at 178.

226. PETERS, *supra* note 126, at 11.

227. *Id. passim.*

when team members are switched around"; (2) "[t]here's a lack of perceived control (accounting, performance, etc.)"; (3) "[r]esource (people) allocation is nightmarish"; and (4) "'[c]reative' time is scarce, given crushing project-deadline pressures."²²⁸ These disadvantages should be familiar to readers who are practicing law. Nonetheless, Peters asserts that the advantages of such structures outweigh their disadvantages, especially as the economy becomes more knowledge-based.²²⁹

Peters reviewed research on investment banking firms to distill certain characteristics of effective professional service firms. First, the organizational structure must allow ideas to "flow."²³⁰ One investment banker said that "the best . . . [ideas] come from the trenches" and that organizational structure must allow "gadflies" to "challenge you and get lateral thinking."²³¹ Second, these organizations "are fluid networks; they are constantly redesigning themselves as their members, largely on their own initiative, form new alliances."²³² Third, specialization allows the firm and individuals within it to create competitive advantage.²³³ Fourth, these organizations use a network structure which, according to an academic study quoted by Peters, stresses flexibility:

The network structures of investment banks are flexible, flat, complex and rife with conflict. . . . Flexibility is required because . . . it is impossible to anticipate the deals a firm will do and what combination of resources will be needed. . . . Flatness is important . . . [There is a] need for

228. *Id.* at 183-84.

229. *See generally id.* According to Peters:

Typically we thought of these "service" firms as on the periphery, or worse—as parasites living off the "real" producers (of steel, cars, etc.). No more. Such firms are pure "knowledge plays," as an oil man might put it, and *all* economic organization is fast becoming "knowledge plays." Hey, it's not an issue of whether or not "manufacturing matters"—*manufacturing has itself become an almost pure knowledge play.*

Id. at 11.

230. *Id.* at 178.

231. *Id.* A quote from Stephen Ambrose supports the importance of "the trenches" in planning:

In the First World War, a British staff officer from General Haig's headquarters visited the Somme battlefield, a week or so after the battle. The orders had been to attack, with objectives drawn up back at headquarters. The attacks had gone forward, through barbed wire, mud, mines, mortar, and machine-gun fire, fallen back with appalling loss, only to be ordered forward again. This had gone on for weeks. And the officer looked at the sea of mud and was shocked by his own ignorance. He cried out, "My God! Did we really send men to fight in this?"

STEPHEN E. AMBROSE, *CITIZEN SOLDIERS: THE U.S. ARMY FROM THE NORMANDY BEACHES TO THE BULGE TO THE SURRENDER OF GERMANY, JUNE 7, 1944 - MAY 7, 1945* at 166 (1997).

232. PETERS, *supra* note 126, at 179.

233. *Id.*

everybody to talk to everybody else, [for] a web of ties that goes in all directions.²³⁴

And last, the internal work structure follows the person and adjusts to support the key worker.²³⁵

Thus, while the ultimate objectives of organizing or reorganizing any business are the same, the techniques used and the ultimate organizational "shape" will necessarily be unique to each particular business.²³⁶ Given the vast array of possible organizational uniqueness, Peter Drucker asserts that "[m]ost human work is carried out in teams," of which he has identified three kinds.²³⁷ The first kind of team is like a baseball team. Each team member plays a fixed position with specialized skills, and "[i]f you are up at bat, you are totally alone."²³⁸ The second kind of team is like a soccer team or a symphony orchestra.²³⁹ In this kind of team each player plays one of a set of fixed positions which are far more interdependent than the baseball team positions. This second type of team also requires a conductor or coach.²⁴⁰ The third kind of team is like a "tennis doubles team" or a

234. *Id.* at 180 (quoting ROBERT G. ECCLES & DWIGHT B. CRANE, *DOING DEALS: INVESTMENT BANKS AT WORK* (1988)).

235. *Id.* at 181.

236. Motorola, for example, has attempted to turn itself into a tribe by "designating a 'tribal storyteller.'" NAISBITT, *supra* note 34, at 24.

237. DRUCKER, *supra* note 39, at 86 (citing and quoting ROBERT W. KEIDEL, *GAME PLANS* (1985), for analogies between teams in business and in sports).

238. *Id.*

239. *Id.* at 87.

240. *Id.* Battlefield commanders provide one study of management and leadership, and General Fred Franks, Jr. (Ret.), former commander of the United States Army's VII Corps, which engaged the Iraqi Republican Guard during the Gulf War, used jargon similar to Drucker's in describing certain management skills:

Franks then turned his attention to a specific skill: the ability to picture operations in his head, and to judge time/distance factors to get the right units in the right combination at the right place at the right time. Franks called this "orchestrating" the battle. . . .

The Army had given Franks lots of opportunities to practice and develop this skill, from platoon leader to corps commander. . . . But it was not only a matter of practice and experience; it also had to do with the way the brain worked—with imagination. CLANCY, *supra* note 197, at 15.

Of course, war holds the prospect of imposing especially grave outcomes for mission failures:

Indeed, it is hard to walk down any corridor of power nowadays without hearing a new and hideous language—"managing by objectives," "outsourcing noncore functions," "negotiating performance measures," and the rest of it. Even generals and admirals are "downsizing their human resources" and "benchmarking their competitors." "Of course this benchmarking is only a rough guide," admits one Pentagon bureaucrat. "The ultimate benchmarking exercise is war."

"jazz combo," and is the most interdependent.²⁴¹ According to Drucker, the third kind of team is the strongest, because it maximizes each player's strength while minimizing each player's weakness.²⁴²

While only a modicum of business literature has analyzed and described team formation, in practice "[n]owadays, teams are regarded as *de rigueur* just about everywhere—and firms lay on special facilities to encourage them."²⁴³ For example, "Sun Microsystems offers laundry and dry cleaning services to members of teams who work round the clock,"²⁴⁴ and "[o]ne of Ford's facilities contains a barber shop, a laundry, and several restaurants."²⁴⁵ Professor Senge uses the term "alignment" to describe the organizational goal of teams:

The fundamental characteristic of the relatively unaligned team is wasted energy. Individuals may work extraordinarily hard, but their efforts do not efficiently translate to team effort. By contrast, when a team becomes more aligned, a commonality of direction emerges, and individuals' energies harmonize. There is less wasted energy. In fact, a resonance or synergy develops, like the "coherent" light of a laser rather than the incoherent and scattered light of a light bulb. There is a commonality of purpose, a shared vision, and understanding of how to complement one another's efforts. Individuals do not sacrifice their personal interests . . . rather, the shared vision becomes an extension of their personal visions. . . . Empowering the individual when there is a relatively low level of alignment worsens the chaos²⁴⁶

The trick, of course, is creating "aligned" teams. One writer suggests that:

To build his team, the commander watches over three elements: He makes sure that the team members share . . . common goals (in particular, the commander's intent). He listens (to know what is actually going on).

MICKLETHWAIT & WOOLDRIDGE, *supra* note 151, at 279.

241. DRUCKER, *supra* note 39, at 87-88.

242. *Id.* He describes the third type of team, the jazz combo, this way:

This team has to be small—seven to nine people may be the maximum. The players have a "preferred" rather than a "fixed" position; they "cover" for one another. And they adjust themselves to the strengths and weaknesses of each other. . . . [T]he team only functions when this adjustment to the strengths and weaknesses of the partners has become conditioned reflex

Id.

243. MICKLETHWAIT & WOOLDRIDGE, *supra* note 151, at 134.

244. *Id.*

245. *Id.*

246. SENGE, *supra* note 217, at 234-35.

And he makes himself aware of the chemistry both within the team and between it and other teams.²⁴⁷

Alternatively,

Most of us have experienced the terrible frustration of being part of a group that had the potential for greatness but never quite gelled. The geometrical surge in ideas and energy that happens in Great Groups never took place, even though the talent was there, the drive was there, and the project seemed full of promise. . . .

. . . It is a miracle [when a Great Group comes together].²⁴⁸

After analyzing selected "Great Groups" the authors of *Organizing Genius* offered some "take-home lessons" that focus on recruitment, leadership, attitude, and interrelationships.²⁴⁹ These organizational "lessons" include insights such as "greatness starts with superb people" and further explains that "Great Groups" are staffed by people who "have specialized skills, combined with broad interests and multiple frames of reference. They tend to be deep generalists, not narrow specialists."²⁵⁰ Other lessons, include

247. CLANCY, *supra* note 197, at 37. The "commander's intent . . . is the concise expression of how you visualize the operation, and it is always written by the commander personally. In the absence of specific orders, it could be used as operating guidelines." *Id.* at 14.

248. WARREN BENNIS & PATRICIA WARD BIEDERMAN, *ORGANIZING GENIUS: THE SECRETS OF CREATIVE COLLABORATION* 196-97 (1997). Not all good teams are "aligned" to maximize potential as contemplated by Peter Senge. Nor are all good teams "Great Groups," as described in the book *Organizing Genius: The Secrets of Creative Collaboration*. The authors of *Organizing Genius* analyzed six Great Groups, including Disney, *see id.* at 31; the Skunk Works, *id.* at 117; the inner circle of Bill Clinton's 1992 presidential campaign, *id.* at 87; and the Manhattan Project, *id.* at 171. On the other hand, Senge used a Boston Celtic world championship team, which included Bill Russell, to exemplify the "alignment" that occurs in Great Groups. Quoting Russell, Senge wrote:

"Every so often a Celtic game would heat up so that it became more than a physical or even mental game," he [Russell] wrote, "and would be magical. The feeling is difficult to describe When it happened I could feel my play rise to a new level . . . It would surround not only me and the other Celtics but also the players on the other team, and even the referees . . . At that special level, all sorts of odd things happened. . . . It was almost as if we were playing in slow motion. During those spells, I could almost sense how the next play would develop and where the next shot would be taken To me, the key was that *both* teams had to be playing at their peaks, and they had to be competitive. . . ."

SENGE, *supra* note 217, at 233-34 (second, third, fifth, and sixth omissions in the original).

249. *See* BENNIS & BIEDERMAN, *supra* note 248, at 196-218.

250. *Id.* at 198.

the fact that “leaders of Great Groups give them what they need,” such as technology, ways to share information, and the time to actually work on primary tasks, while “freeing them from the rest such as dress codes, set hours, or other arbitrary regulations.”²⁵¹ Finally,

Great Groups are engaged in solving hard, meaningful problems. . . . The payoff is not money, or even glory. Again and again, members of Great Groups say they would have done the work for nothing. The reward is the creative process itself. Problem solving douses the human brain with chemicals that make us feel good.²⁵²

In sum, it appears that successful teams “align,” and it further appears that such alignment requires both freedom and discipline within groups of talented individuals. Such seemingly incompatible management styles are simultaneously necessary because “if society is to avoid both anarchy and alienation, soft ideas like empowerment need to be mixed with harder ones like management by objectives.”²⁵³

4. The Just-In-Time Workforce

This business-level reaction to the macroeconomic forces is broader than its title might indicate because it applies “just-in-time” inventory control principles to everything, including “outsourcing” employees in the labor market. Illustratively, in the world of manufacturing:

Just-in-time systems have been defined as those that “produce and deliver finished goods just in time to be sold, subassemblies just in time to be assembled into finished goods, fabricated parts just in time to go into subassemblies, and purchased materials just in time to be transformed into

251. *Id.* at 211-12. The lessons listed therein are: “1. Greatness starts with superb people,” *id.* at 197; “2. Great Groups and great leaders create each other,” *id.* at 198; “3. Every Great Group has a strong leader,” *id.* at 199; “4. The leaders of Great Groups love talent and know where to find it,” *id.* at 201; “5. Great Groups are full of talented people who can work together,” *id.* at 202; “6. Great Groups think they are on a mission from God,” *id.* at 204; “7. Every Great Group is an island—but an island with a bridge to the mainland,” *id.* at 206; “8. Great Groups see themselves as winning underdogs,” *id.* at 207; “9. Great Groups always have an enemy,” *id.* at 207; “10. People in Great Groups have blinders on,” *id.* at 208; “11. Great Groups are optimistic, not realistic,” *id.* at 209; “12. In Great Groups the right person has the right job,” *id.* at 210; “13. The leaders of Great Groups give them what they need and free them from the rest,” *id.* at 211; “14. Great Groups ship,” *id.* at 214; and “15. Great work is its own reward,” *id.* at 215.

252. *Id.* at 215.

253. MICKLETHWAIT & WOOLDRIDGE, *supra* note 151, at 72.

fabricated parts." Or, more simply, "the idea of producing the necessary units in the necessary quantities at the necessary time."²⁵⁴

The advantages of just-in-time inventory include, for example, lower inventory carrying costs and lower costs associated with the risks of purchasing excess or obsolete inventory, such as having to sell such inventory at scrap rates, rather than at full-market prices. Such advantages, and the just-in-time techniques that created them, are a product of the information revolution because just-in-time techniques were made possible by real-time computer access to relevant information. Just-in-time concepts have also been applied to workers. For example:

In the United States, the number of individuals employed by temporary agencies has increased 240% in the last 10 years. Along with using more just-in-time workers, organizations are also streamlining operations and reducing costs by outsourcing support functions such as information services, security, and human resources.²⁵⁵

Thus, it appears that even more services and workers, including professionals such as accountants and engineers, will be utilized by companies on an as-needed basis, similar to the way inside corporate counsel traditionally have used outside legal counsel. Drucker used the legal profession to demonstrate yet another example of outsourcing: "American law firms already contract out to an outside computerized 'database' most of what their own law library used to do."²⁵⁶ Outsourcing implicates just-in-time principles and also hints at a deeper managerial philosophy. According to Drucker:

The structure of the post-capitalist society will therefore be different from either the earlier capitalist or the socialist society. There, organiza-

254. DAVIDOW & MALONE, *supra* note 183, at 120 (footnotes omitted).

255. Barner, *supra* note 173, at 16. Thus, "just-in-time" workers leverage the cost efficiency of flexibility. This flexibility is important in many organizational contexts and it has been described as Eisenhower's "outstanding tactical quality" as follows:

Eisenhower preferred to fight them west of the Rhine, and to close to the river from the Swiss border to Arnhem. At that point he could pull twenty divisions out of the line to create a reserve force that would then be capable of exploiting any opportunity that came along. . . . By this stage of the war, flexibility was Eisenhower's outstanding tactical quality. What he had learned in the preceding twenty-eight months of combat was to expect to be surprised and to be ready to seize opportunities.

AMBROSE, *supra* note 232, at 399.

256. DRUCKER, *supra* note 39, at 93.

tions tried to encompass the maximum of activities. Organizations of the post-capitalist society, by contrast, will concentrate on their core tasks. For the rest, they will work with other organizations in a bewildering variety of alliances and partnerships. Both capitalist and socialist societies were, to use a scientific metaphor, "crystalline" in their structure. Post-capitalist society is more likely to resemble a liquid.²⁵⁷

5. The Ascendancy of Knowledge Workers, the Aging Workforce, Computerized Coaching, and Electronic Monitoring

Two of the three responses in this section are in unity with the macro change forces described in the first section of this part of this article. The first change is the "ascendancy of knowledge workers."²⁵⁸ The resulting organizational challenge will be to "build effective team relationships between two different levels of knowledge workers—professionals and paraprofessionals. There is a growing potential for conflict between broad-based professionals and lower-paid technical specialists who are extremely skilled within a relatively narrow spectrum of their career field."²⁵⁹ Moreover, team relationships will decrease the demand for "managerial purists,"²⁶⁰ instead calling for blended technical and managerial skills from a broader array of job descriptions.

This technical component will require all employees "to make a strong commitment to life-long learning and skill advancement."²⁶⁰ This need for "life-long learning" reflects the rapid rates at which both knowledge and education change. Surprisingly, "employers already spend almost as much money on training adult employees as the country spends on educating the young in its formal schools."²⁶¹ The authors of *The Virtual Corporation* used the example of former CEO Richard Plumley, whose company reaped fifty and thirty-five percent improvements in productivity and defect rates, respectively, as a result of having provided its employees with free classroom instruction in subjects ranging from geometry to Japanese.²⁶² As Plumley concluded, "[t]he investment in education has more than paid for itself."²⁶³

Drucker holds out continuing professional education as a model for all workers.²⁶⁴ Thus, like Peters, he presents the professional firm as a future business model. As Drucker states: "[i]n the United States, doctors, lawyers,

257. *Id.* at 96.

258. Barner, *supra* note 173, at 16.

259. *Id.*

260. *Id.*

261. DRUCKER, *supra* note 39, at 207.

262. DAVIDOW & MALONE, *supra* note 183, at 193-94 (footnotes omitted).

263. *Id.* at 194.

264. *Cf.* DRUCKER, *supra* note 39, at 205.

engineers, business executives are increasingly expected to go back to school every few years lest they become obsolete."²⁶⁵ He further states that "[w]hat is needed now is a new axiom: 'The more schooling a person has, the more often he or she will need further schooling.'"²⁶⁶ The knowledge obtained by further schooling will be more than mere information:

Knowledge does not reside in a book, a databank, a software program; they contain only information. Knowledge is always embodied in a person; carried by a person; created, augmented, or improved by a person; applied by a person; taught and passed on by a person; used or misused by a person. The shift to the knowledge society therefore puts the person in the center.²⁶⁷

The second applied management change that is in unity with macro change forces is the aging workforce. On the microeconomic business management level, the greying of the workforce may change organizational structure because "older employees . . . provide experience and maturity to the organization and . . . are often more flexible about taking part-time and odd-hour shifts."²⁶⁸ Experience is a form of learning, and focusing this experience on the task at hand will be the challenge for management.

The last of the three changes described in this section is the combination of computerized coaching and electronic monitoring. This management change merges both advancing technology and the need for continual learning. For example, "[e]lectronic 'performance enhancement' systems will . . . decrease employees' dependance on managers for coaching, training, and performance feedback and help make self-directed learning a reality."²⁶⁹ On the other hand, monitoring systems often make "employees feel helpless, manipulated, and exploited."²⁷⁰ Thus, at the same time that worker independence is necessary, electronic monitoring might discourage independence in the same way that workers during the Industrial Revolution were discouraged from independent thought.²⁷¹

265. *Id.*

266. *Id.*

267. *Id.* at 210.

268. Barner, *supra* note 173, at 18.

269. *Id.* at 17.

270. *Id.*

271. Adam Smith, himself a champion of specialized labor, foresaw the problem created by repetitive process that became one of the hallmarks of mass-production. He wrote: "'The man whose life is spent in performing a few simple operations has no occasion to exert his understanding. . . . he naturally loses, therefore, the habit of such exertion, and generally becomes as stupid and ignorant as it is possible for a human creature to become.'" BLUESTONE & BLUESTONE, *supra* note 114, at 127 (quoting ADAM SMITH, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS 734 (Edwin Cannan ed., Random

6. The Growth of Worker Diversity and the Birth of the Dynamic Workforce

The growth of worker diversity and the birth of the dynamic workforce reflect aspects of the macro change forces of changing demographics, the emergence of a global economy, and the shift to a knowledge-based society. These business reactions also reflect the advent of the just-in-time work force and the ascendancy of knowledge workers. The growth of worker diversity is demonstrated, first, by the fact that in the year 2000, a full 85 percent of new workers entering the U.S. workforce, according to Labor Department projections, will be women and minorities.²⁷² Second, the macro immigration trends mentioned previously will alter the workforce race-mix across all industries. Third, "companies are increasingly setting up manufacturing and assembly plants in other countries, and many smaller companies are expanding into international markets,"²⁷³ encouraging a transnational exchange of workers or the development of cross-cultural teams. The future workforce, therefore, promises to be more diverse and to contain more women, more immigrants, and more international employees, firms, and teams.

Whatever management challenges a diverse workforce brings, there is evidence that diversity breeds creativity, which will be at a premium in the coming business environment: "On the issue of diversity and creativity, the research is unequivocal: For mundane, repetitive tasks, homogenous teams outperform heterogeneous teams; but for nonrepetitive tasks, the kind that require fresh ideas and different points of view, diverse teams are the hands-down winners."²⁷⁴ Furthermore, in terms of the new global economy, without workforce diversity "[h]ow can you understand the guy in Beijing if you can't understand the Chinese lawyer in your own firm?"²⁷⁵

House 1937) (1776)).

272. Barner, *supra* note 173, at 17.

273. *Id.*

274. Keva, *supra* note 2, at 53.

275. *Id.* (citation omitted). According to Professor Keegan, the first acknowledged users of "diversity" (for both good and bad) for military purposes appears to be the Assyrians:

Assyrian military organisation also foreshadowed that of later imperial armies. For one, Assyria appears to have been the first power to recruit troops without ethnic discrimination. Ruthless in its population policy—it resettled dissidents far from their homelands in order to assure internal security, as the Ottomans and Stalin were later to do—it was at the same time quite prepared to integrate into the army both subject peoples and prisoners of war, as long as it was sure it could count on their loyalty. . . . For another, subject peoples often entered the army, as Rome's were later to do, with their own distinctive weapons—slings or bows—and formed corps ancillary to the army's main fighting-force. They may also have provided the siege engineers . . .

KEEGAN, *supra* note 58, at 171-72.

Creativity and innovation are both fostered by worker diversity. This premise is consistent with Howard Gardner's view that "[t]oo much time and experience thinking in a certain way can prove uncongenial to any innovation."²⁷⁶ For example, "the unhealthy brain [is] 'mode-locked,' or rigid. 'It's like a lynch mob' 'In a lynch mob all the people who usually behave as individuals suddenly . . . all start thinking alike, and they become ugly. It's a loss of chaos, which is also a loss of wisdom.'"²⁷⁷

Finally, the "dynamic workforce" emphasizes the increasing importance of knowledge and the project and team focuses exhibited by "virtual corporations." For example, "the dynamic organization will require workers to be able to jump quickly into new ventures and manage temporary, project-focused teams."²⁷⁸ Thus, the dynamic workforce implicitly recognizes the importance of just-in-time workers.

By also recognizing "the need for continuous improvement to meet changing customer requirements and competitor actions,"²⁷⁹ the "dynamic workforce" implicates an individual worker capable of generating those continuous improvements.²⁸⁰ The effects of such economically driven demands on individual workers can be analyzed through humanistic psychology.²⁸¹ Illustratively, and by way of brief explanation, humanistic psychologist Abraham Maslow asserted that "humans develop at different stages and, at each stage, are motivated by different human needs."²⁸² Maslow's hierarchy of needs includes, from lowest to highest: (1) Physiological Needs; (2) Safety Needs; (3) Belongingness and Love Needs; (4) Esteem Needs; and (5) the "Need for Self-Actualization."²⁸³ According to Maslow's original theory, self-actualization was the highest level of motivation or achievement, and

self-actualized people are characterized by a superior perception of reality, spontaneity, autonomy, freshness of appreciation, richness of emotional reaction, improved interpersonal relations, increased creativity, increased acceptance of self, of others, and of nature. Self-actualized people are well-suited for their self-determined activities.²⁸⁴

276. See Sharon Begley et al., *The Puzzle of Genius*, NEWSWEEK, June 28, 1993, at 51. Gardner is an educational philosopher at Harvard. *Id.* at 47.

277. Laurie Garrett, *Discovery: Life Is Chaos*, NEWSDAY, Mar. 7, 1989, at 1, 4 (quoting University of California at San Diego psychiatrist Arnold Mandell).

278. Barner, *supra* note 173, at 18.

279. *Id.*

280. See generally Geu & Davis, *supra* note 82, at 1681.

281. See generally Solomon, *Humanistic Economics*, *supra* note 166; Solomon, *Perspectives on Human Nature*, *supra* note 166.

282. Solomon, *Perspectives on Human Nature*, *supra* note 166, at 222-23 (footnote omitted).

283. See, e.g., *id.* at 223 (footnotes omitted).

284. *Id.* at 224 (footnote omitted).

Maslow's concepts have been adopted for use by business managers and incorporated into such theories as Douglas McGregor's Theory Y which "allows managers to be more humane . . . [and] leads to organizational adaptability to a changing environment, to effective problem-solving, and to greater employee loyalty."²⁸⁵ Even Maslow, however, recognized that "humanistic psychology" was an incomplete description of human behavior because it lacked a relational (or "transpersonal") element. Because of this recognition, Maslow later added to his theory a level of development that included individuals called "'peak-ers' [who] transcend self-actualization."²⁸⁶

The primary importance of Maslow's humanistic psychology for purposes of this article derives from the relationship of "peak-ers" to "self-actualizers." Because the concept of "peak-ers" implicates the importance of human interaction, "[t]he notions of transcendent potentials and transpersonal orientation espouse the benefits of human growth towards wholeness through interaction with others. It combines new levels of psychological growth with a spiritual quest designed to explore the higher dimensions of human existence."²⁸⁷

C. A Brief Summary of Parts I & II

The purpose of Parts I and II of this article was to set an observational baseline of current macro and micro economic behavior in the business sector (either public or private). Parts III through V of this article²⁸⁸ will build upon this discussion by developing a template of a coevolution, chaos, and complex adaptive system theory for comparison with observations.

Part III of this article, therefore, will first report on the scientific status of punctuated equilibrium and complex adaptive systems theory. Part IV will then describe how these theories are independently applied to business and law. Finally, Part V will analyze the intersection of business and law through the mediation of these scientific theories. It will argue that this analysis yields a viable hypothesis that law and business are parts of a complex adaptive system and will conclude with an illustration of the

285. *Id.* at 225. According to Solomon: "Theory Y leads to organizational adaptability to a changing environment . . . Techniques for its implementation include managerial efforts to disperse decision-making, to decentralize information, and to enlarge the scope of jobs." *Id.* Further, "[i]n the context of organizational and human development, the symbiotic relationship between the individuals and the organization is based on the implementation of conditions so that the 'members of an organization can achieve their own goals best by directing their efforts toward the success of the enterprise.'" *Id.* at 225-26 (quoting DOUGLAS MCGREGOR, *THE HUMAN SIDE OF ENTERPRISE* 49 (1960)).

286. *Id.* at 229 (footnote omitted).

287. *Id.* at 228-29 (footnote omitted).

288. See Thomas Earl Geu, *Chaos, Complexity, and Coevolution: The Web of Law, Management Theory, and Law Related Services at the Millennium* (pts. III-V), 66 TENN. L. REV. (forthcoming 1998).

practical gains such research might yield by speculatively applying the hypothesis to the drafting of business organizational statutes and by examining the legal service industry as a component of such a complex adaptive system.