

# The Ownership and Commodification of Legal Knowledge: Using Social Theory of the Information Age as a Tool for Policy Analysis

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## I. INTRODUCTION: CONTESTED VISIONS OF THE "INFORMATION SOCIETY"

In recent years, intellectual goods have been subject to increased pressures towards proprietization and commodification. In the field of law, this tendency has been particularly evident as a result of the growing use of proprietary electronic databases and the concentration of ownership in the legal publishing industry. In answering the general question *what is Legal Knowledge*, an issue of growing importance pertains to the issues of ownership of legal knowledge, and the general tendencies for the commodification of legal knowledge into forms over which ownership claims may be made. This paper attempts to views these developments through the lens of conflicting social theoretical models, including questions of epistemology, the philosophy of technology, economic models, historical analysis, the role of information technology in the workplace, and ideology. To highlight the sharp contrast between competing social theories of what is often referred to as the "information age", two contrasting theories will be presented as ideal-typical models. The juxtaposition of these models will provide an analytical tool that can be used to analyze divergent policies concerning the ownership, control, dissemination and use of legal knowledge and information resources.

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Much of contemporary society's discourse is premised on certain unquestioned assumptions about the relationships between information technology and social and economic changes. The basic assumption is that we have entered the *information age*, a manifestation of Daniel Bell's theory of *post-industrial society* based on a transformation caused by advances in information technology. The terms *information society* and *information economy* have also entered popular usage, indicating a generally held belief that a new type of society is emerging. Rapid technological advances centered on the convergence of computers and communications and the resulting growth of digital networks fuel this belief. The popular acceptance of these terms is similar to that of the 'atomic age' or 'space age' of an earlier generation. As historian Theodore Roszak observed, "Every historical period has its godword. There was an Age of Faith, an Age of Reason, an Age of Discovery. Our time has been nominated to be the Age of Information."<sup>1</sup> The popular notion is that we live in the information age and the attendant worldview can be termed the *information society model*.

While not always explicitly stated, the assumptions underlying the idea of the *information age* or the *information society* have important consequences for information policy. These assumptions can be identified along various strands, or categories, of social theory and constitute an ideal-typical formulation of mainstream information society theory:

- Methodological and epistemological commitments are based on a positivistic and value-neutral outlook that models social inquiry on the methods and assumptions of the natural sciences;
- An over-simplistic account of the nature of information privileges information as a quantifiable thing;
- An uncritical acceptance of information technology as a neutral and autonomous force acting as an independent determinant of other social processes;
- A sharp break with the industrial past in a way that privileges the present period as overly exceptional;
- An uncritical acceptance of the "free market" as the ideal allocative mechanism for the production and distribution of information, leading to the imposition of a broad range of new technological and legal restrictions for proprietary interests in information goods and services;

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<sup>1</sup> Theodore Roszak, *The Cult of Information: A Neo-Luddite Treatise on High-Tech, Artificial Intelligence and the True Art of Thinking* 2<sup>nd</sup> ed. (Berkeley, CA: University of California Press, 1994) at 19.

- An unduly optimistic account of how new information technologies will affect social stratification, the division of labour in society and individual work processes;
- An implicit assumption, characterized as the “End of Ideology Thesis”, negates the need for critical inquiry and leads to the uncritical acceptance of the above strands of what may be called a mainstream ideology of the information age.

Yet when these underlying assumptions are critically interrogated, they each turn out to become contestable. The uncritical acceptance of this *information society model* is based on a particular reading of social history that also results in policy outcomes that are highly problematic. In particular, the *information society model*, when applied to the area of intellectual property, yields policy outcomes that exacerbate the tension between the private ownership of information and knowledge resources and the promotion of innovation. This tension also threatens democratic access to information and the growth of society’s “collective symbolic capacity”.<sup>2</sup>

Thus, an alternative framework needs to be posited in order to enable and inform public policies that will to continue to promote innovation, ensure democratic access to information and enlarge society’s collective symbolic capacity. A set of corresponding assumptions may be juxtaposed to those of the *information society model*, providing a critical alternative to mainstream information society theory:

- Positivistic outlooks are rejected in favour of a critical epistemological and methodological framework that recognizes the value-laden nature of the production of knowledge.
- The over-simplistic account of the nature of information is rejected for a broader definition emphasizing meaning, knowledge and understanding. Information is seen as a socially constructed phenomenon, not an engineering concept.
- The instrumental theory of technology is rejected in favour of a normative theory that views technology as reflective of other social, cultural,

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<sup>2</sup> Manuel Castells, *The Informational City: Information Technology, Economic Restructuring and the Urban-Regional Process* (Oxford: Blackwell Publishers, 1989) at 15–16, pointing to the close relationship between a society’s symbolic capacity and its developmental process in what he terms the informational mode of development: “The more a society facilitates the exchange of information flows, and the decentralized generation and distribution of information, the greater will be its collective symbolic capacity. It is this capacity which underlies the enhancement and diffusion of information technologies, and thus the development of productive forces.”

economic and political relations. Rather than privilege technology as an independent determinant of other social processes, it is seen as but one of several mutually dependent factors that influence social change.

- Rejecting the view of the information age as in sharp rupture with the industrial past, informatization is viewed as a reflection of the logic of capitalist relations and as an outgrowth of global restructuring of production. Notwithstanding rapid technological advances, this approach emphasizes continuity with the past.
- An unwavering reliance on the “free-market” allocation model is rejected in favour of an approach rooted in the tradition of critical political economy. The public provision of information goods is viewed as a social goal while the current trend towards expanding proprietary interests in information is viewed as problematic.
- A critique of the widening stratification in the ‘information society’ accompanies a less optimistic viewpoint of the impact of technology on the labour process. The question of antagonistic class relations in society, and how they may be shifting, is explicitly recognized.
- Rejecting the “End of Ideology Thesis”, the critical model explicitly recognizes the dominant “ideology of the information age” as a form of hegemony.

These seven pairings give rise to two competing theories, the *information society model* and the *information-for-society model*. As these conflicting models are rooted in fundamentally contradictory assumptions about the nature and characteristics of information and knowledge, and its role in society, their juxtaposition provides a useful lens for information policy analysis.

What are the origins of the idea of the *information society*? How are these social and historical concepts related to the notion of the *post-industrial society* and other attempts to describe the transformations of the late 20<sup>th</sup> century?

James Beniger pointed out that dozens of social commentators have tried to label this current period.<sup>3</sup> But it is the term “information” that has stuck and become what Roszak called the “godword” of our age. Most accounts of the information society begin by attributing the concept to Daniel Bell, whose 1973 work, *The Coming of Post Industrial Society: A Venture in Social Forecasting*, was a

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<sup>3</sup> James Beniger, *The Control Revolution: The Technological and Economic Origins of the Information Society* (Cambridge, MA: Harvard University Press, 1986).

culmination of more than a decade of writing and research on the subject.<sup>4</sup> But four years earlier, a 1969 work by Alain Touraine, *La Societe Post-Industrielle*, presented a different account of the historical transformations then underway.<sup>5</sup> Even though both works bore the title “Post-Industrial Society,” Bell focused on technical rationality and stability while Touraine emphasized growing uncertainty and conflict. Even after Touraine’s work was published in English in 1971 with the subtitle, *Tomorrow’s Social History: Classes, Conflicts and Culture in the Programmed Society*, it received little attention compared to Bell’s opus. As Bell’s work is central to the *information society* model, Touraine’s is foundational to the *information-for-society* model.

Initially, Bell downplayed the idea that he was describing an existing social reality. In his introduction to *The Coming of Post-Industrial Society*, he described the work as “an essay in social forecasting,”<sup>6</sup> particularly a “social forecast about a change in the social framework of Western society.”<sup>7</sup> To achieve this result, he employed the notion of a conceptual schema:

Social frameworks are not ‘reflections’ of a social reality, but conceptual [schemata. A schema]...selects particular attributes from a complex reality and groups these under a common rubric in order to discern similarities and differences. As a logical ordering device, a conceptual schema is not true or false but either useful or not.<sup>8</sup>

But as Bell lays out his five dimensions of post-industrial society, these claims become tenuous. It becomes clear that he is attempting to describe an existing reality, one based on an inevitable trajectory determined by advances in information technology. Bell’s five dimensions were first stated as:

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<sup>4</sup> Daniel Bell, *The Coming of Post-Industrial Society: A Venture in Social Forecasting*. (New York: Basic Books, 1973). Bell’s work is arguably one of the most influential books of the 20<sup>th</sup> century. First published in 1973 and then reissued with an expanded forward in 1976, the work was again re-issued in 1999 with a new foreword by the author entitled *The Axial Age of Technology*. In this Forward, Bell maintains that his formulation of post-industrial society has been proven correct by events and he reiterates the elements of his thesis. For a review of the 1999 foreword, see Samuel E. Trosow, Review [Daniel Bell, “The Coming of Post-Industrial Society: A Venture in Social Forecasting”, reissued ed.] (2000) 70 *Library Quarterly* 397.

<sup>5</sup> Alain Touraine, *The Post-Industrial Society: Tomorrow’s Social History: Classes, Conflicts and Culture in the Programmed Society* (New York: Random House, 1971) [trans. by Leonard F. X. Mayhew].

<sup>6</sup> Bell, *supra* note 4 at 3.

<sup>7</sup> *Ibid.* at 9.

<sup>8</sup> *Ibid.* Later in the introduction, Bell repeated his assertion that he was writing about a future scenario, not describing reality, and claimed he was writing “an ‘as if,’ a fiction, a logical construction of what *could* be, against which the future social reality can be compared in order to see what intervened to change society in the direction it did take” (at 14).

1. Economic sector: the change from a goods-producing society to a service economy;
2. Occupational distribution: the pre-eminence of the professional and technical class;
3. Axial principle: the centrality of theoretical knowledge as the source of innovation and of policy formulation for the society;
4. Future Orientation: the control of technology and technological assessment;
5. Decision-making: the creation of a new 'intellectual technology.'<sup>9</sup>

Regardless of Bell's intent, his portrayal of post-industrial society has taken on substantive meaning going well beyond the "venture in social forecasting" that was the subtitle of his 1973 book. Writing about the effects of post-industrialism on library and information services, Michael Harris and Stan Hannah argue that Bell was successful in "moulding" the future as well as "predicting" it.<sup>10</sup>

In a subsequent essay Bell explicitly linked post-industrialism to the *information society*.<sup>11</sup> But in this later work, only three of the dimensions are identified. First was the change from a goods producing to a service economy. The second was the centrality of the codification of theoretical knowledge as a driving force in society. Bell calls this dimension the "axial principle" of post-industrial society, noting that when theoretical knowledge is "codified" it becomes the "director of social change."<sup>12</sup>

The third surviving dimension was the creation of "intellectual technology" as the key tool of production. By "intellectual technology", Bell refers to methods that seek to substitute an algorithm, or decision rules, for intuitive judgments. These algorithms represent a "formalization" of judgments and their routine application to varied situations. Bell says that to the extent that intellectual technology is becoming predominant in the management of organizations and

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<sup>9</sup> *Ibid.* at 14.

<sup>10</sup> Michael H Harris & Stanley A. Hannah, *Into The Future: The Foundations of Library and Information Services in the Post-Industrial Era* (Norwood, N.J.: Ablex, 1993) at 25, arguing that "part of the reason for his success has to be situated in the uncommon ability of the 'astute social theorist' to state his vision in ways that would at once appear to offer solutions to major problems facing a society gripped by 'severe self-doubt' while at the same time offering a reasoned explanation that, despite its contradictions and faults, appeared to resonate with the experience of vast numbers of people."

<sup>11</sup> Daniel Bell, "The Social Framework of the Information Society" in T. Forester, ed., *The Microelectronics Revolution: The Complete Guide to the New Technology and its Impact on Society* (Cambridge, MA: MIT Press, 1980) 500.

<sup>12</sup> *Ibid.* at 501.

enterprises, it is as central a feature of postindustrial society as machine technology was in industrial society.<sup>13</sup>

What factors accounted for this shift in Bell's thinking? By the end of the 1970s, post-industrial theory was taking on a new tone—one more responsive to the growing rightward drift—and this change was reflected in the shift to the notion of the *information society*. Whereas post-industrialism had defined the new era in terms of its departure from the crises of industrialism, information society theory gave the shift a more substantive content, one more attuned to the climate of Thatcherism and Reaganism. Nick Dyer-Witheford argues that symptomatic of the new tone is the way Bell recast his earlier arguments about post-industrialism, dropping two of the five original dimensions, those relating to the professional class and to the enlarged scope of government planning and public policy.<sup>14</sup> By the late 1980s, any pretext of Bell's claim to scenario building (as opposed to describing reality) was gone. In 1989, Bell wrote that "post-industrial society is not a projection or extrapolation of existing trends in Western society; it is a new principle of socio-technical organization and ways of life"<sup>15</sup>

Another seminal work defining the information society model is Zbigniew Brzezinski's *Between Two Ages: America's Role in the Technetronic Era*.<sup>16</sup> Brzezinski showed how the role of knowledge in industrial societies differed from the role of knowledge in 'technetronic' society. In the industrial society, technical knowledge was applied primarily to the end of acceleration and improvement of production, with social consequences a secondary concern. But in Brzezinski's 'technetronic' society,

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<sup>13</sup> *Ibid.* at 504–505.

<sup>14</sup> See Nick Dyer-Witheford, *Cyber-Marx: Cycles and Circuits of Struggle in High-Technology Capitalism* (Urbana: University of Illinois Press, 1999) at 21–22. Dyer-Witheford suspected this deletion was a reflection of the rightward political shift and growing hostility to the role of government. See also David Lyon, *The Information Society: Issues and Illusion* (Oxford: Polity Press, 1988), who observed that while the post-industrial thesis had been subject to intense criticism, "its resilience is shown by the fact that it can be re-cycled as 'the information society'" (at 2).

<sup>15</sup> Daniel Bell, "The Third Technological Revolution, and its Possible Socioeconomic Consequences" (1989) 36 *Dissent* 164 at 167.

<sup>16</sup> Zbigniew Brzezinski's *Between Two Ages: America's Role in the Technetronic Era* (New York: Viking Press, 1970) at 9, (explicitly adopting an analysis rooted in technological determinism, he wrote: "The transformation that is now taking place . . . is already creating a society increasingly unlike its industrial predecessor. The post-industrial society is becoming a "technetronic" society: a society that is shaped culturally, psychologically, socially, and economically by the impact of technology and electronics—particularly in the area of computers and communication.")

scientific and technical knowledge, in addition to enhancing production capabilities, quickly spills over to affect almost all aspects of life directly. Accordingly, both the growing capacity for the instant calculation of the most complex interactions and the increasing availability of biochemical means of human control augment the potential scope of consciously chosen directions and thereby also the pressures to direct, to choose, and to change.<sup>17</sup>

Unlike Bell, Brzezinski made no pretext that he was not describing an emerging social reality. Bell tries to distance himself from Brzezinski on the grounds that the "shaping nature or primacy of the 'technetronic' factors implies a technological determinism which is belied by the subordination of economics to the political system."<sup>18</sup> But despite such differences, Bell and Brzezinski share a general vision of the relationship between information and society. While neither of them addressed questions about intellectual goods in the field of law, such implications were profound as it was during this period that the groundwork was being laid for the development of electronic legal databases.<sup>19</sup>

Like Bell and Brzezinski, Alain Touraine acknowledged the formation of a new type of society:

These new societies can be labeled post-industrial to stress how different they are from the industrial societies that preceded them, although—in both capitalist and socialist nations—they retain some characteristics of these earlier societies. They may also be called technocratic because of the power that dominates them. Or one can call them programmed societies to define them according to the nature of their production methods and economic organization. This last term seems to me the most useful because it most accurately indicates the nature of these societies' inner workings and economic activity.<sup>20</sup>

But unlike Bell and Brzezinski, Touraine emphasized the potential social conflicts in the new society:

There are new social conflicts peculiar to the society we observe being formed. Rather than simply [having] a conflict between capital and labor, the new conflict is between the structures of economic and political decision-making and those who are reduced to dependent participation. We could use other terms and say that the conflict is between

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<sup>17</sup> *Ibid.* at 10. While crediting the earlier work of Daniel Bell as pioneering, Brzezinski preferred the terminology *technetronic* to *post-industrial* since it conveys more directly the "character of the principal impulses for change in our time" (at 9).

<sup>18</sup> Bell, *supra* note 4 at 38.

<sup>19</sup> See William G. Harrington, "Computers and Legal Research" (1970) 56 A.B.A. Journal 1145; "What's Happening in Computer Assisted Legal Research?" (1974) 60 A.B.A. Journal 924.

<sup>20</sup> Touraine, *supra* note 5 at 3.



those segments of society which are central and those which are peripheral or marginal.<sup>21</sup>

In a review of Bell's *Coming of Post-Industrial Society*, Touraine criticized Bell's purposeful indifference to the role of social actors:

[Bell] speaks of economy, politics, and culture, but society itself is an empty stage, without actors. We hear about institutions, not about power; about cultural works, not about movements; about production or inflation, not—or almost not—about transnational corporations, generals, unemployed workers, women, blacks, or old people. Such an absence is not a consequence of indifference or ignorance. It is purposeful.<sup>22</sup>

Jorge Schement and Leah Lievrouw observed that the information society concept has been powerful because it lends itself to broad social theorizing.<sup>23</sup> To show how theorists diverge on these issues, Schement and Lievrouw point to essays by Herbert Dordick and Herbert Schiller as exemplars of different social theoretical approaches to information society research. Dordick presented an optimistic assessment of how the convergence of computers and communications is creating a new "network marketplace",<sup>24</sup> and stated, "Many societies throughout the world, and especially in the United States, seem to be ready for this transformation. Driven by human nature and abetted by technological opportunities, we seem to be moving towards a highly privatized way of life."<sup>25</sup>

Herbert Schiller presented a less optimistic account of these changes, pointing out that information channels are increasingly in the hands of large corporations. For Schiller, the commercialization of information weakens the public's access to information and deepens information inequality in society.<sup>26</sup> Schiller

<sup>21</sup> *Ibid.* at 9.

<sup>22</sup> Alain Touraine, Review Essay: "What is Daniel Bell Afraid Of?" (1977) 83 *Am. Jl of Sociology* 469 at 471. In a subsequent work, Touraine identified social actors as the source of growing conflict: "I believe that we are entering into a type of social situation defined by the growing ability of collectivities to act upon themselves, especially in those places where power no longer resides in the imposition of forms of work but primarily, and mostly, in the setting of a way of life, forms of behavior and needs. One could speak of a hyperindustrial society in the sense that large organizations, beyond the realm of production, slowly assert their domination over nearly all aspects of social life, from information to health, from research to urban planning. If this hypothesis is correct, we must expect the emergence of new actors and new social conflicts everywhere." *Return of the Actor: Social Theory in Post-industrial Society* (Minneapolis: University of Minnesota Press, 1988) at 25 [trans. by Myrna Godzich].

<sup>23</sup> Jorge R. Schement & Leah A. Lievrouw. "The Fundamental Assumptions of Information Society Research" in Jorge R. Schement & Leah A. Lievrouw, eds., *Competing Visions, Complex Realities: Social Aspects of the Information Society* (Norwood, N.J.: Ablex, 1987) at 1.

<sup>24</sup> Herbert Dordick, "The Emerging Information Societies", *ibid.* at 19.

<sup>25</sup> *Ibid.*

<sup>26</sup> Herbert Schiller, "Old Foundations for a New (Information) Age", *ibid.* at 30.

spoke of increasing information equality a decade before the term “digital divide” became a widely discussed concept.

On the other hand, Schement and Lievrouw:

see the information phenomena as historically significant, but reject the notion that the social patterns in an information society represent a break from those of the industrial period... [They] propose that the information phenomena reflect the continuing evolution of industrial capitalism, which has resulted in an information-oriented society in the United States.<sup>27</sup>

These disparate visions of post-industrial society are foundational to the two competing paradigms of social theories considered here. Schement and Lievrouw summarized their work by posing the question: “What is the pervasive logic of information-oriented industrial society?”<sup>28</sup> They articulate the need to identify how, and to what extent, the logic of industrial capitalism has been modified. The construction of the *information-for-society* model is an attempt to address various aspects of this issue. Each of the strands of the model are considered in the following seven sections in turn.

## II. THE FIRST STRAND: META-THEORETICAL ASSUMPTIONS OF THE MODELS

What are the meta-theoretical assumptions underlying the two models of information and society? Gibson Burrell and Gareth Morgan presented a two-dimensional framework for social science theory based on certain assumptions about (1) the nature of social science, and (2) the nature of society.<sup>29</sup> They conceptualize the nature of social science as four sets of assumptions, each located along a subjective/objective dimension. The nature of society is conceptualized along an order/conflict continuum.

The first set of assumptions concerning the nature of social science are ontological questions about the nature of reality and are framed in what is termed the nominalist-realist debate.<sup>30</sup> The realist, or objective view, sees the social world as external to the individual. This external world is real, is composed of structures that exist as measurable entities, and exists independent of any human perception of it. On the other hand, the nominalist or subjective view pos-

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<sup>27</sup> *Ibid.* at 38. While Schement and Lievrouw present their analysis as a “third view”, their analysis also stands as a precursor to the *information-for-society model* presented here as an alternative to mainstream information society theory.

<sup>28</sup> *Ibid.* at 159–60.

<sup>29</sup> Gibson Burrell & Gareth Morgan, *Sociological Paradigms and Organisational Analysis: Elements of the Sociology of Corporate Life* (London: Heinemann, 1979).

<sup>30</sup> *Ibid.* at 4.

its reality as the result of individual cognition. The individual creates the social world and gives names to phenomena in a metaphoric sense to help negotiate and make sense of this socially constructed world. To the nominalist, the objective view of reality makes the error of reifying these constructs by taking the metaphors literally. To the realist, the subjective view of reality makes the error of ignoring these constructs.

The second set of assumptions are epistemological. Concerns with the nature and grounds of knowledge are often referred to as the anti-positivism/positivism debate.<sup>31</sup> Positivism holds knowledge as real and capable of transmission in tangible form. What happens in the social world may be predicted and even controlled based upon empirical observations grounded in the scientific method of inquiry. The more subjective view rejects the standpoint of the observer in favour of that of the participant. The utility of searching for laws or underlying regularities, an understanding from the outside, is rejected in favour of understanding from the inside.

The third set of assumptions relates to the essence of human nature, characterized by Burrell and Morgan as the "voluntarism-determinism" debate.<sup>32</sup> The deterministic view sees human activities as determined by situations and the environment. This view leads to the positioning of phenomena, such as technology, as independent variables that determine human responses. A more subjective, or voluntarist, view sees humans as autonomous agents endowed with free will, such free will drives other social phenomena.

Finally, assumptions about methodology concern the manner in which one attempts to identify, gather and record knowledge of reality. Methodology may be seen as the bridge between the ontological and epistemological realms.<sup>33</sup> The second dimension, regarding the nature of society, is conceptualized as a debate between sociological approaches that emphasize order and equilibrium on the one hand, and those that emphasize change, conflict and coercion on the other.<sup>34</sup> Burrell and Morgan characterize these differences as between the

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<sup>31</sup> *Ibid.* at 5.

<sup>32</sup> *Ibid.* at 6.

<sup>33</sup> *Ibid.* at 6–7. The nomothetic, or objective view, utilizes the methods and procedures of natural science with an emphasis on quantitative analysis, standardized research instruments and the construction of clinical experiments as the tools of analysis of the social world. This view favours a deductive approach to inquiry. The more subjective, or ideographic, view attempts to get "inside" situations by attempting to understand the experiences and flow of the subject. Qualitative inquiry based upon personal history, interviews and case studies allows the subject to unfold in an individual manner. This view favours an inductive approach to inquiry and is not concerned with the testing of hypotheses.

<sup>34</sup> *Ibid.* at 10.

“sociology of regulation” and the “sociology of radical change.”<sup>35</sup> The sociology of regulation is concerned with explaining the underlying cohesiveness of society. Its focus is the need to understand why society is maintained as an entity, *i.e.* why does society tend to hold together rather than fall apart? In contrast, the sociology of radical change is more concerned with the process of change, which is associated with conflict, domination, and contradiction.<sup>36</sup>

Burrell and Morgan use these two dimensions to construct four distinct paradigms. While there are differences within each paradigm, Burrell and Morgan stress the underlying unity based on their location along both the objective/subjective and regulation /radical change dimensions. The functionalist paradigm has been the dominant framework for most western social science. It is rooted in sociological positivism and the tradition of scientific inquiry.<sup>37</sup> Theorists working in this tradition are concerned with providing explanations for social order and maintaining stability. The interpretive paradigm is concerned with understanding the social world based upon subjective experience.<sup>38</sup> The functionalist and interpretive paradigms differ in their ontological, epistemological and methodological approaches as well as in their conceptions of human agency. However, neither seriously questions the *status quo* nor problematizes the role of social conflict induced by stratification and differential power relationships.

The radical structuralist paradigm uses an objectivist approach to social science towards the ends of radical change.<sup>39</sup> In this view, historical laws determine structural relationships of the material world, a position characteristic of scientific Marxism. The radical humanist paradigm, also centered on social

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<sup>35</sup> *Ibid.* at 16–17.

<sup>36</sup> *Ibid.* at 17, arguing “[It is] concerned with man’s emancipation from the structures which limit and stunt his potential for development. The basic questions which it asks focus upon the deprivation of man, both material and psychic. It is often visionary and Utopian, in that it looks towards potentiality as much as actuality; it is concerned with what is possible rather than with what is; with alternatives rather with acceptance of the status quo.”

<sup>37</sup> Burrell and Morgan develop functionalist sociology in Chapter 4 (*ibid.* at 41–117), tracing it to August Comte’s (1798–1857) positive model of society that was based on the methods of natural science.

<sup>38</sup> Interpretive sociology is developed by Burrell and Morgan in Chapter 6 (*ibid.* at 227–259), and traced to Immanuel Kant (1724–1803), who stressed the primacy of *a priori* knowledge over empirical experience. They identify the works of William Dilthey (1833–1911), Max Weber (1864–1920) and Edmund Husserl (1859–1938) as most foundational to the paradigm (at 228).

<sup>39</sup> Burrell and Morgan’s develop the radical structuralist paradigm in Chapter 10 (*ibid.* at 326–364) and trace it to Karl Marx (1818–1883) and Frederick Engels’s (1820–1895) materialist view of history, particularly as it was been interpreted by Nikolai Bukharin (1888–1938).

change, conflict, and a critique of the status quo, takes a more subjective stance.<sup>40</sup>

The *information society* model is premised on methodological and epistemological commitments to a scientific, positivistic, and value-neutral outlook. It is oriented toward describing reality in a way that adopts a realist ontological approach.<sup>41</sup> It adopts a determinist view of human nature, insofar as it elevates technology to an autonomous and independent force. This viewpoint is best illustrated by Brzezinski's observation that the post-industrial, or technetronic society is shaped culturally, psychologically, socially, and economically by the impact of technology and electronics.<sup>42</sup>

In terms of the nature of social science, the *information society* model is premised on the assumption that abundant information resources will promote stability and order. This emphasis on calculability and order is best illustrated by Bell's comment that "[t]he goal of the new intellectual technology is, neither more nor less, to realize a social alchemist's dream: the dream of 'ordering' the mass society."<sup>43</sup> Conflicts associated with differential access to information are not problematized. As such, the *information society* model would be situated within Burrell and Morgan's dominant functionalist paradigm.

In contrast, the *information-for-society* model adopts a critical-realist ontological outlook and a non-positivist epistemological and methodological framework that recognizes the value-laden nature of the production of knowledge. It takes a view of human nature that is decidedly voluntarist. As David Lyon points out, "the fact that human beings are reflexive creatures has to be incor-

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<sup>40</sup> Radical humanism is developed by Burrell and Morgan in Chapter 8 (*ibid.* at 279–309) where it is traced to Georg W.F. Hegel (1724–1803) and Marx as later developed by Antonio Gramsci (1891–1937), Georg Lukacs (1885–1974) and writers associated with the Frankfurt School of Critical Theory. For Burrell and Morgan, the crucial difference between the radical structuralist and radical humanist paradigms is a paradigm shift between the philosophical works of the young Marx and the economism of the mature Marx. This duality between the young and mature Marx has been emphasized by numerous authors and disputed by others.

<sup>41</sup> See Jennifer Slack, "The Information Age as Ideology: An Introduction" in Jennifer Slack & Fred Fejes eds., *The Ideology of the Information Age* (Norwood, N.J.: Ablex, 1987) 1, which claimed that in much of the existing literature, the "information age" is assumed as a set of social practices that are mirrored in their description. There is a correspondence between reality and descriptions of it. In contrast, she argued that descriptions of the information age are themselves constitutive aspects of the "information age". The relationship between Slack's ontological assessment and questions of ideology are further discussed in Section VIII.

<sup>42</sup> Brzezinski, *supra* note 16 at 9.

<sup>43</sup> Bell, *supra* note 4 at 33.

porated within any pattern of human relationship."<sup>44</sup> Lyon expresses this agency-centered view in contrast to accounts "where technology apparently has the capacity to shape society in some autonomous fashion."<sup>45</sup>

In terms of the nature of social science, the *information for society* model is premised on a critique of the status quo; the emphasis is on how informatization is associated with conflict, not in how it generates stability. As such, this model is situated within what Burrell and Morgan would consider the radical humanist paradigm.<sup>46</sup>

As an overall research program, the critical methodological outlook is based on a logic that is derived from C. Wright Mills' distinction between macroscopic and molecular research. Mills pointed to Marx, Weber, Simmel and Mannheim as key macroscopic researchers who "like to deal with total social structures in a comparative way; their scope is that of the world historian; they attempt to generalize types of historical phenomena, and in a systematic way, to connect the various institutional spheres of a society, and then relate them to prevailing types of men and women."<sup>47</sup> Mills emphasized that the differences between the two approaches are social as well as logical:

Molecular work requires an organization of technicians and administrators, of equipment and money, and, as yet, of promoters. It can not proceed until agencies of research are sufficiently developed to provide detailed materials. It has arisen in definite institutional centers: in business . . . among marketing agencies; . . . in the polling

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<sup>44</sup> Lyon, *supra* note 14 at ix.

<sup>45</sup> *Ibid.*

<sup>46</sup> However, the critical research paradigm places less emphasis on the qualitative/quantitative dichotomy than do Burrell and Morgan. See Raymond A Morrow & David D. Brown, *Critical Theory and Methodology* (Thousand Oaks, CA: Sage, 1994) at 207. Morrow and Brown argued that the "predominant distinction between quantitative and qualitative methods in sociology serves primarily to conceal and confuse theoretical positions" as "[t]he dichotomy focuses attention on the "techniques through which social life is represented in the course of research, as opposed to the process of representing social reality." They argued that the dichotomy is false and lacks face validity, pointing out that ethnographers do count things and that quantitative research is based on constructed meanings. The primary difference between the two poles is the language of research, and such a difference, they argue, is not an adequate criterion for such an absolute differentiation of research forms (at 208).

<sup>47</sup> C. Wright Mills, "Two Styles of Research in Current Social Studies" 20(4) *Philosophy of Science*, reprinted in *Power, Politics and People: The Collected Essays of C. Wright Mills*, Irving Louis Horowitz, ed., (New York: Ballantine Books, 1953) 553 at 554. In contrast, molecular researchers work on small-scale problems using statistical models of verification: "Molecular work has no illustrious antecedents, but, by virtue of historical accident and the unfortunate facts of research finance, has been developed a great deal from studies of marketing and problems connected with media of mass communication. Shying away from social philosophy, it often appears as technique and little else."

agencies; in academic life at two or three research bureaus; and in research branches of government.<sup>48</sup>

Using Mills' work as a foundation, Morrow and Brown distinguish the underlying normative logic of a model based on *social engineering* from a model of inquiry based on *social theorizing*. While the former represents the predominant variable based methodology, the latter seeks to transform existing social relations as well as to comprehend them. The methodological outlook of the *information-for-society* model is closely associated with this model of social theorizing. Table 1 summarizes the general assumptions underlining the *information society* and *information-for-society* models in terms of where they are situated in Burrell and Morgan's meta-theoretical framework.

	Information Society Model	Information-for-Society Model
Ontological Assumptions	Realist	Critical realist
Epistemological Assumptions	Positivist	Anti-positivist
Assumption about Human Nature	Determinist	Voluntarist
Methodological Assumptions	Quantitative / Social engineering	Critical / Dialectical/ Social theorizing
Assumptions about the Nature of Society	Sociology of Regulation Order	Sociology of Change Conflict

Table 1: Situating the Two Models in the Meta-Theoretical Framework

### III. THE SECOND STRAND: THE NATURE OF INFORMATION

In the *information society* model, information, and ultimately knowledge, is seen as an engineering concept, something that is capable of quantitative representation within a formal system. The process of codifying knowledge so that it can be subsumed into technological systems subject to ownership claims is emphasized. In the *information-for-society* model, the over-simplistic account of the nature of intellectual goods is rejected in favour of a broader definition that emphasizes meaning, tacit knowledge and understanding. Information and knowledge are seen here as a socially constructed phenomenon, not as an engineering concept. This difference has serious implications for information policy and bears directly on the nature of legal knowledge.

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<sup>48</sup> *Ibid.* at 555.

There is an increasing tendency to provide oversimplified accounts for how the term *information* itself is conceptualized. Carl Shapiro and Hal Varian's definition of information provides an instructive example of this tendency:

We use the term *information* very broadly. Essentially, anything that can be digitized—encoded as a stream of bits—is information. For our purposes, baseball scores, books, databases, magazines, movies, music, stock quotes and Web pages are all *information goods*. We focus on the value of information to different consumers. Some information has entertainment value, and some has business value, but regardless of the particular source of value, people are willing to pay for information.<sup>49</sup>

But this definition is extremely narrow in that it is limited to a specific type of format through which information may be conveyed. It assumes all information is capable of being expressed through binary logic, and that information is necessarily a commodity, capable of quantification in terms of money for purposes of exchange.

Daniel Bell's attempt to define knowledge is also noteworthy. He rejected Fritz Machlup's five-part classification of knowledge<sup>50</sup> as overbroad for his purposes, and distinguishes between the need for a definition able to express societal change and a definition needed for purposes of social policy. While Bell acknowledged that "an effort to deal with comprehensive societal change would need to take [definitions of knowledge such as Machlup's] into account", he stated that "for the purposes of social policy, however—the need to determine the allocation of societal resources for some specific purpose of social utility—I would propose a restricted definition".<sup>51</sup>

This distinction between a definition suitable for "comprehensive societal change" and one for the purposes of "social policy" is curious inasmuch as Bell is presenting knowledge as the new driving force in society. Why would a narrower definition of knowledge suffice in the policy process? Did Bell envision the policy process as somehow disconnected from the broader process of social change?

Bell went on to provide this definition:

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<sup>49</sup> Carl Shapiro & Hal Varian, *Information Rules: A Strategic Guide to the Network Economy* (Boston: Harvard Business School Press, 1999) at 3.

<sup>50</sup> Fritz Machlup, *The Production and Distribution of Knowledge in the United States* (Princeton, N.J.: Princeton University Press, 1962). Machlup's five categories are: practical knowledge (subdivided into professional, business, workman's, political, household and other practical knowledge), intellectual knowledge, small-talk and pastime knowledge, spiritual knowledge and unwanted knowledge (at 21–22).

<sup>51</sup> Bell, *supra* note 4 at 176.

<sup>51</sup> Machlup's five categories are: practical knowledge (subdivided into professional, business, workman's, political, household and other practical knowledge), intellectual knowledge, small-talk and pastime knowledge, spiritual knowledge and unwanted knowledge (*supra* note 50 at 21–22).



Knowledge is that which is objectively known, an *intellectual property*, attached to a name or group of names and certified by copyright or some other form of social recognition (e.g. publication). This knowledge is paid for—in the time spent in writing and research; in the monetary compensation by the communication and educational media. It is subject to a judgment by the market, by administrative or political decisions of superiors, or by peers as to the worth of the result, and as to its claim on social resources, where such claims are made. In this sense, knowledge is part of the social overhead investment of society; it is a coherent statement, presented in a book, article, or even a computer program, written down or recorded at some point for transmission, and subject to some rough count.<sup>52</sup>

Bell's definition of knowledge resembles Shapiro and Varian's definition of information as it stressed an objectified thing capable of quantitative expression and ownership. Such definitions are symptomatic of a wider tendency within mainstream *information society* theory. Information theory, with its roots in the hard sciences, was designed to provide a mathematical theory for electronic communication systems, particularly signal transmission. But this notion was generalized to include instances of human communication as well and thereby contributed to the foundation for later discussions about the "information society."

Bell's notions of the "codification of theoretical knowledge" and his emphasis on the "centrality of intellectual technology" were two crucial underpinnings of his theory of post-industrialism. The notions of rational decision-making are rooted in mathematical conceptualizations of information and communications phenomena. Bell explicitly linked post-industrial theory to the idea of an "information age" in his 1980 essay, *The Social Framework of the Information Society*.

Proponents of the commodification of information as an aspect of post-industrialism have been strongly influenced by the formal information theory. Shannon and Weaver<sup>53</sup> suggested a formalized definition of information capable of expression as a mathematical formula. But they were working only at a technical level, concerned primarily with the transmission of electrical signals. Nonetheless, their technical usage was soon applied to information problems in the realm of human communications and even became extended to questions of meaning. While many theorists have since recognized this application as an over-extension of mathematical information theory, the concept retains some influence, especially where the values of technical rationality are dominant.

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<sup>52</sup> Bell, *supra* note 4 at 176 [emphasis in original]. Bell acknowledged that "such a utilitarian definition . . . shuns the relevant questions of a 'sociology of knowledge': the social setting of ideas, their interconnections, their relation to some structural foundation, and the like." But these questions, he says, "are outside my purview here" (at 176-77).

<sup>53</sup> Claude Shannon & Warren Weaver, *The Mathematical Theory of Communication* (Urbana: University of Illinois Press, 1949).

This construction of information was rooted in what has been characterized as the logic of social engineering.<sup>54</sup>

Such influences are present in Shapiro and Varian's definition of information as well as in Bell's definition of knowledge. Indeed, this view permeates the work of post-industrial/information society theorists. Two of the central tenets of Bell's post-industrial thesis are the centrality of the codification of theoretical knowledge and the creation of intellectual technology as the key tool of production. By intellectual technology, Bell referred to methods that seek to substitute an algorithm, or decision rules, for intuitive judgments. These algorithms represent a "formalization" of judgments and their routine application to varied situations. Bell said that to the extent that intellectual technology is becoming predominant in the management of organizations, it is as central a feature of post-industrial society as machine technology was in industrial society.<sup>55</sup>

Those aspects of information that are rooted in the logic of social engineering, the technical and quantifiable, have tended to crowd out context-dependent meanings of information. Notions of information associated with personal knowledge and meaning have not fared as well in the predominant information paradigm. In discussing how logical empiricism treated social science as part of the logic of natural science, Giddens and Turner observed that even though the subject matter of social science revolves around interpretative processes of culture and communications, "the notion of *Verstehen*, the understanding of meaning, received short shrift."<sup>56</sup> This general observation remains applicable to the construction of information in the *information society model*.

To highlight the gulf between the constructions of information in the two models, it is useful to consider the definition of information and its relationship to knowledge. Starting from the premise that the meaning of the term *information* has been ambiguous, Michael Buckland identified three principal uses of the word.<sup>57</sup> First, *information as process* by which is meant the action of informing. Second, *information as knowledge* is that which is imparted in the process of informing. Finally, *information as thing* constitutes objects such as data and documents. While this conceptual framework provides a useful classificatory tool, it is only a nominal definition. In order to create a true propositional defi-

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<sup>54</sup> See Mills, *supra* note 47, and Morrow and Brown, *supra* note 46.

<sup>55</sup> Bell, *supra* note 11 at 504-505.

<sup>56</sup> Anthony Giddens & Jonathan H. Turner, eds., *Social Theory Today 2* (Stanford, CA: Stanford University Press, 1987).

<sup>57</sup> Michael K. Buckland, "Information as Thing" (1991) 42(5) *Jl of the Am. Soc. for Info. Science* 351 at 351; *Information and Information Systems 3-4*, (New York: Praeger, 1991).

nition and avoid circularity, it is necessary to extract some essence or generalization that applies to all three of the forms of Buckland's *information*.<sup>58</sup>

From the foregoing analysis, a working definition of information may be suggested: *Information is that which*<sup>59</sup> *has the potential for changing the knowledge structure*<sup>60</sup> *of one or more persons.*<sup>61</sup> This approach to defining information provides a multi-faceted conceptual framework that stresses the great diversity contained within the meaning of information and its relationship to knowledge. It spans the dualities of stock and flow, subjective and objective, as well as qualitative and quantitative. But the tendency to try to boil information down into something much more simplistic continues to persist. This oversimplification is most evident when one considers the problem of information as a commodity. While information as a commodity is an instance of Buckland's *information as thing*, this particular aspect of information has become an overarching principle in the information economy, and the important aspects of *information as process* and *information as knowledge* have taken a back seat to the more privileged status of *information as thing*.

The importance of the definition of information in policy discourse was emphasized by Sandra Braman, who argued:

The argument over how to define information is critical because that definition is central to the just emerging information policy regime... Battles over the nature of the regime to dominate are still being fought with the conflict over operational definitions a key battleground.<sup>62</sup>

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<sup>58</sup> Another useful conception of information, and its relationship to knowledge, is provided by Bertram Brookes' fundamental equation of information and knowledge. In this equation,  $K(S) + \Delta I = K(S + \Delta S)$  an existing knowledge structure  $K(S)$  becomes a new knowledge structure  $K(S + \Delta S)$  by a change in information ( $\Delta I$ ). In this regard, it is useful to think of knowledge as a stock and information as a flow that acts to change the stock. Bertram C. Brookes, "The Foundations of Information Science, Part I: Philosophical Aspects" (October 1980) 2 JI of Info. Science 125.

<sup>59</sup> 'That which' connotes both information as process and information as thing. *That which* is used instead of *anything that* or *something that* in order to avoid the use of the word *thing*, in the general definition since information as thing is only one of the three senses of information.

<sup>60</sup> 'Potential to change knowledge structure': the use of the term "potential" is to broaden the reach of the definition. "... that which changes the knowledge structure..." would be more limiting in that there are many factors which could account for information *not* changing a knowledge structure.

<sup>61</sup> 'Of one or more persons': the plural is used instead of "... of a person." in order to avoid an overly individualistic approach. Accordingly, information may change the knowledge structure of an individual, a group, a community or an organization.

<sup>62</sup> Sandra Braman, "Defining Information: An Approach for Policymakers," (1989) 13 Telecommunications Policy 233 at 234.

Recognizing the highly contestable nature of the definitional problem, Braman offered a hierarchy of definitions of information that fell into four groups (from bottom to top of the hierarchy): information as a resource, information as a commodity, information as perception of pattern, and information as a constitutive force in society.<sup>63</sup>

This pluralistic definitional approach was preferred by Braman because if only one type of definition is permitted, then “economic value may well destroy other types of value inherent in social, cultural, religious and aesthetic information.”<sup>64</sup> Braman concluded that “the definitions that provide the deepest levels of analysis and should be used first are those that treat information as a constitutive force in society.”<sup>65</sup> She argued that “the first decision that must be made is about the shape of the society that is desired. The next step is to determine what information policy principles are most likely to produce or support the desired society.”<sup>66</sup> In later stages of analysis, other definitions of information (*i.e.*, as a resource, as a commodity, as perception) can also be used. But Braman provided an important *caveat* for invoking these secondary definitions:

Second or subsequent steps of analysis may choose to use other definitions of information as appropriate. Each such use, however, should bear in mind the fact that information treated—as a commodity or as a resource—does so with effects that must be understood of information as a constitutive force in society. This definition provides the context, and ultimate analytical standard, of any decision made using other definitions of information.<sup>67</sup>

Braman ended her analysis by saying that if information is to be viewed as a commodity, certain questions need to be asked. What happens when the governor of a process is potentially controlled by a subset of participants in a process? Are there different types of information, some of which can be treated as a commodity and some of which cannot? Should information critical to the governing of a process be held as a good common to all participants in that process?<sup>68</sup>

Proponents of the *information-society* model do not ask these questions, and as a result, definitions stressing *information as a commodity* tend to crowd out other meanings. This tendency has serious implications for the information pol-

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<sup>63</sup> *Ibid.* at 235.

<sup>64</sup> *Ibid.* at 237.

<sup>65</sup> *Ibid.* at 242.

<sup>66</sup> *Ibid.*

<sup>67</sup> *Ibid.*

<sup>68</sup> *Ibid.*

icy process since the tendency towards commodification is not checked by other competing, though less quantifiable, considerations.

#### IV. THE THIRD STRAND: THE PHILOSOPHY OF TECHNOLOGY

How should a social theory for the information age view the nature of information technology? This part will identify various perspectives within the philosophy of technology, to contrast their differing assumptions, and to consider their implications for contemporary information policy. Two divergent approaches are considered; the instrumental theory of technology and the substantive / normative) theory of technology.

Andrew Feenberg described the *instrumental theory of technology* in which technology, as an instrumental tool, is devoid of intrinsic evaluative content; it can be used for whatever ends are desired by the user.<sup>69</sup> Feenberg noted that under the instrumental theory, an unreserved commitment to the employment of a particular technology is the typical response if it suits an instrumental purpose. If someone takes exception to the employment of a particular technology on moral or ethical grounds, it will be, so the instrumentalist argument goes, at the price of reduced efficiency.<sup>70</sup>

Mainstream *post-industrial society as information society theory* views information technology as a neutral and autonomous force acting as an independent determinant of other social processes. This construction is a form of technological determinism that sees information technology not only as an important enabling factor for social, economic and political transformations, but as the crucial independent variable that acts on other processes, structures and institutions to cause change. Daniel Bell's theory of *post-industrial society as information society* stands as a significant contemporary exemplar of the instrumental theory of technology. Bell emphasized the new role of intellectual technology, by which he meant methods that seek to substitute an algorithm, or decision rules, for intuitive judgments. These algorithms represent a formalization of judgments and their routine application to varied situations. Bell said that to the extent that intellectual technology is becoming predominant in the management of organizations and enterprises, it is as central a feature of postindustrial society as machine technology was in industrial society.<sup>71</sup> While many authors point to the importance of new technology in the production process, Bell went so far as to identify rational social ordering as the goal of the new intellectual technology:

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<sup>69</sup> Andrew Feenberg, *Critical Theory of Technology* (New York: Oxford University Press, 1991).

<sup>70</sup> *Ibid.* at 6.

<sup>71</sup> *Supra* note 11 at.504–505.

The goal of the new intellectual technology is, neither more nor less, to realize a social alchemist's dream: the dream of "ordering" the mass society. In this society today, millions of persons daily make billions of decisions about what to buy, how many children to have, whom to vote for, what job to take, and the like... If the computer is the tool, then decision theory is its master. Just as Pascal sought to play dice with God, and the physiocrats attempted to draw an economic grid that would array all exchanges among men, so the decision theorists seek their own *tableau entire*—the compass of rationality, the 'best' solution to the choices perplexing men.<sup>72</sup>

This passage is one of the clearest indications of Bell's adherence to the instrumentalist school. In contrast, the *information-for-society* model employs a normative theory that views technology as a reflection of other social, cultural, economic and political relations. Normative theories are rooted in the works of philosophers of technology such as Martin Heidegger<sup>73</sup> and Jacques Ellul<sup>74</sup> as well as in strands of Marxian and critical theory. Marx's own writings on technology<sup>75</sup> and writers associated with the Frankfurt School of Critical Theory<sup>76</sup> stand in sharp contradiction to the instrumental school.<sup>77</sup>

Nick Dyer-Witford argued that in the technological determinist account, "the forces of production [are seen as] technological, and only the relations of production are social, with the former having primacy over the latter."<sup>78</sup> The tra-

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<sup>72</sup> *Supra* note 4 at 33.

<sup>73</sup> Martin Heidegger, *The Question Concerning Technology and Other Essays* (New York: Harper & Row, 1977) [trans. by William Lovitt].

<sup>74</sup> Jacques Ellul, *Technological Society* (New York: Vintage Books, 1964) [trans. by John Wilkinson].

<sup>75</sup> Marx's conception of technology runs directly counter to the notion of neutral and value-free technology, as he saw purposeful production as the basic activity of man and the manner in which production is organized is a question of social relations. Such relationship between human agency and production technologies is explicitly stated in Marx's *Grundrisse*: "Nature builds no machines, no locomotives, railways, electric telegraphs, self-acting mules, etc. These are products of human industry; natural material transformed into organs of the human will over nature, or of human participation in nature. They are organs of the human brain, created by the human hand; the power of knowledge objectified." Karl Marx, *Grundrisse: Foundations of the Critique of Political Economy* [1857–1858] (New York: Penguin Books, 1973) at 706 [trans. with a Foreword by Martin Nicolaus].

<sup>76</sup> See Herbert Marcuse, *One Dimensional Man* (Boston: Beacon Press 1964).

<sup>77</sup> Langdon Winner has also developed wide-ranging critiques of de-politicized, de-historicized and de-contextualized accounts of science and technology See his *Autonomous Technology: Technics-out-of-control as a Theme in Political Thought* (Cambridge: MIT Press, 1977); "Do Artifacts Have Politics?" (1980) 109 *Daedalus* 121; and *The Whale and the Reactor: A Search for Limits in an Age of High Technology*. (Chicago: University of Chicago Press, 1986).

<sup>78</sup> *Supra* note 14 at 39. (Dyer-Witford emphasized how other readings of Marx reverse the technological determinist account: "For it is social relations—capital's requirement for total control over the valorization process—that shapes machines, not vice versa. From the read-

dition of critical Marxism carried on by theorists associated with the Frankfurt School continued the critique of the role of technology in advanced industrial society. In *One Dimensional Man*, Herbert Marcuse argued that the technical apparatus of production and distribution has become "totalitarian to the extent to which it determines not only the socially needed occupations, skills and attitudes but also individual needs and aspirations."<sup>79</sup> Technology thus serves to institute more effective and complete forms of social control. As a result of these totalitarian features, Marcuse asserted that "the traditional notion of the 'neutrality' of technology can no longer be maintained. Technology as such cannot be isolated from the use to which it is put; the technological society is a system of domination which operates already in the concept and construction of techniques."<sup>80</sup>

Marcuse pointed out that while advanced industrial society is a *technological universe*, it is at the same time a *political universe*. He refers to the often-cited passage in Marx's *Poverty of Philosophy* to confront the notion of neutral technology:

One may still insist that the machinery of the technological universe is 'as such' indifferent towards political ends—it can revolutionize or retard a society. An electronic computer can serve equally a capitalist or socialist administration; a cyclotron can be an equally efficient tool for a war party or a peace party. This neutrality is contested in Marx's controversial statement that the 'hand-mill gives you society with the feudal lord; the steam-mill society with the industrial capitalist.' And this statement is further modified in Marxian theory itself: the social mode of production, not technics is the basic historical factor. However, when technics becomes the universal form of material production, it circumscribes an entire culture; it projects a historical totality—'world'.<sup>81</sup>

This passage suggests that technology, when it reaches a certain level of development in a society, becomes able to cloak the actual interests for which it acts.<sup>82</sup> Notwithstanding his strong critique of technology, Marcuse understood

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ing of such passages flows a different line of analysis the exponents of which run from Georg Lukacs through to Harry Braverman and David Noble, who insist that machinery is only a moment in forces of production whose constitution is itself a matter of social power" (at 40).

<sup>79</sup> *Supra* note 76 at xv.

<sup>80</sup> *Ibid.* at xvi.

<sup>81</sup> *Ibid.* at 154.

<sup>82</sup> In a subsequent passage, Marcuse wrote: "The universal effectiveness and productivity of the apparatus under which [man and nature] are subsumed veil the particular interests that organize the apparatus. In other words, technology has become the great vehicle of *reification*—reification in its most mature and effective form. The social position of the individual and his relation to others appear not only to be determined by objective qualities and laws, but these qualities and laws seem to lose their mysterious and uncontrollable character; they appear as calculable manifestations of (scientific) rationality" (at 168–169).

its liberatory potential. Douglas Kellner noted that when “[Marcuse] speaks of the ‘abolition of the terrors of capitalist industrialization,’ he is not harking back to an idyllic pre-industrial world, but insists on utilizing to the fullest the best productions of science and technology.”<sup>83</sup> Kellner pointed to the opening passages of *One Dimensional Man* to show that Marcuse fully appreciated the liberatory potential of technology: “The very structure of human existence would be altered, the individual would be liberated from the work world’s imposing on him alien needs and alien possibilities. The individual would be free to exert autonomy over a life that would be his own.”<sup>84</sup>

Rather than privilege technology as an independent determinant of other social processes, normative theorists see it as but one of several mutually dependent factors that influence social change. Critics of post-industrial theory have emphasized the problematic nature of the instrumental view of technology. Jennifer Slack argued it is vital to abandon ideas of neutrality of technology. Instead, she saw technology as both “causes and effects that are integrally related to the environment.”<sup>85</sup> Similarly, Herbert Marcuse asserted that “the traditional notion of the ‘neutrality’ of technology can no longer be maintained. Technology as such cannot be isolated from the use to which it is put; the tech-

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<sup>83</sup> Douglas Kellner, *Herbert Marcuse and the Crisis of Marxism* (Berkeley: University of California Press, 1984) at 331.

<sup>84</sup> *Supra* note 76 at 2. This position should not be confused with the viewpoint that holds that technology itself is neutral. Kellner continued: “Marcuse does not, however, have faith in the emancipatory potentialities of the forces of production alone, as if their unfettered development would automatically bring about social progress and would rebel against—and eventually explode—restrictive relations of production. Marcuse is aware that forces of production are themselves shaped, structured and even constituted by relations of production”; *ibid.* at 330–331. See also David J. Hess, *Science Studies: An Advanced Introduction* (New York: New York University Press, 1997), identifying other theorists such as Jacques Ellul, Lewis Mumford, and Langdon Winner in the category of Critical Technology Studies. Ellul wrote that technology (technique) was operating under its own inner logic and that mankind was submitting to its imperatives in a suicidal manner. Mumford distinguished between large system-centered technologies that are unstable and weaker yet resourceful human-centered ones. Winner noted that while in the past, technology had seldom been seen as a primary subject matter for political or social inquiries, this condition was beginning to change. Winner directly confronted the notion of “technics out of control”, a major concern expressed by Ellul and others. But in contrast to Ellul’s sense of resignation and pessimism, Winner called for a sustained examination and critique of the uncritical embrace of new technologies. He especially stressed a critique of the notion that technological design choices are not politically driven.

<sup>85</sup> Jennifer Slack, *Communication Technologies And Society: Conceptions of Causality and the Politics of Technological Intervention* (Norwood, N.J.: Ablex., 1984) at 146. See also Carolyn Marvin, *When Old Technologies Were New: Thinking About Electric Communications in the Late 19<sup>th</sup> Century* (Oxford: Oxford University Press, 1988) at 4, arguing that “instrumental-centered” approaches to technology overlook how technologies are a “series of arenas for negotiating issues crucial to the conduct of social life.”



nological society is a system of domination which operates already in the concept and construction of techniques."<sup>86</sup>

One explanation for the vast divergence of opinion on this issue is the definitional problem: what is meant by the terms *technology* and *neutrality of technology*? Just as opinions differ on the underlying question of the *neutrality* of technology, so too they differ on the *definition* of technology. At the risk of oversimplification, these differences may be thought of as extremes on a continuum. At the narrowest end, technology is simply the physical tool, implement or machine. But in its broadest sense, technology could be viewed as not only the physical components of a system, but their relationships with each other and those who use them. At the narrow end, technology is simply a physical thing. At its broadest, it is a complex system consisting of things, relationships and processes. At the narrow end, technology is a relationship with things. At its broadest, relationships between people are involved as well.

Rejecting the narrow "implement" view of technology, Norman Balabanian proposes five dimensions to technology.<sup>87</sup> Langdon Winner also took a broad approach to the definition of technology and distinguished between *technology* and *apparatus*. The latter are "the class of objects we normally refer to as technological—tools, instruments, machines, appliances, weapons, gadgets—which are used in accomplishing a wide variety of tasks."<sup>88</sup> He also noted that "technology" applies to some forms of social organization such as factories, workshops, armies and bureaucracies. James Beniger defined technology as "roughly equivalent to that which can be done, excluding only those capabilities that occur naturally in living systems."<sup>89</sup>

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<sup>86</sup> *Supra* note 76 at xvi.

<sup>87</sup> Norman Balabanian, *The Neutrality of Technology: A Critique of Assumptions*. In John Buschman, ed., *Critical Approaches to Information Technology in Librarianship: Foundations and Applications* (Westport, CT: Greenwood Press, 1993) 15. The first is the physical dimension of hardware (tools, instruments and machines), structures (buildings, roads, networks) and materials. The second dimension is the "know-how" consisting of procedures, processes and methods. The third consists of the personnel who have been provided with the procedural know-how necessary to manipulate the objects of the physical dimension. The fourth dimension is an organizational structure, a mechanism of management and control that involves a series of relationships and linkages between physical objects, processual know-how and personnel. This dimension of technology adds a degree of complexity that is often overlooked in more simplistic definitions. Balabanian included as a fifth dimension of technology political and economic power. While this issue is implicit in the organizational dimension, Balabanian explicitly acknowledged power as a component of technology.

<sup>88</sup> Langdon Winner, *Autonomous Technology: Technics-out-of-control as a Theme in Political Thought* (Cambridge, MIT Press, 1977) at 11.

<sup>89</sup> Beninger, *supra* note 3 at 9.

It seems intuitive that proceeding upward through the progressive layers of Balabanian's scheme, as the definition of technology becomes more complex, the assertion of the "neutrality of technology" becomes less plausible. But what does the "*neutrality of technology*" mean? Balabanian identified various aspects of "neutral technology."<sup>90</sup> Primarily, neutral technology is a passive tool in which no values are embedded and it is apolitical in that it is not concerned with relations of power or domination. Neutral technology exists as an inanimate object waiting to be used, for better or worse, by a human, and if it is used harmfully, it is the human operator's fault.

It should be noted that though conceptually distinct, the notions of neutral technology and autonomous technology are closely related and both indicative of the instrumental as opposed to substantive theory of technology.<sup>91</sup> Framing the *neutrality problem* in broader terms helps make the articulation of its policy implications more explicit. What cuts across all of these fields, and what is particularly evident in the instance of technology, is that neutrality is illusory. It is an ideological mask that effectively keeps difficult questions from being raised. Heidegger warned that "we remain unfree and chained to technology, whether we passionately affirm or deny it. But we are delivered over to it in the worst possible way when we regard it as something neutral."<sup>92</sup>

One's viewpoint on the "neutrality of technology" is directly relevant to the formation of information policy since the question of design of technological systems cannot be divorced from their political, economic and social effects. Looking at the issue from the broadest possible vantage-point—as suggested by Balabanian—helps keep the totality of these relationships in mind. The widespread introduction of technological systems in the law starting in the 1980s was accomplished without such a critical understanding. For the most part,

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<sup>90</sup> Balabanian, *supra* note 87 at 23.

<sup>91</sup> The question of the neutrality of technology is part of the broader question of neutrality that permeates social analysis at various levels. In various disciplines, the neutrality debates take different forms and consider different phenomena. In political science, for example, theorists argue about the role of the state. Pluralists view the state as a neutral arena for the negotiation of different interests. In contrast, critics of pluralism emphasize an asymmetry of power relationships and deny the neutrality of the state apparatus and policy-making processes. In librarianship, the concept of neutrality has historically been a foundational principle of library service. But critics argue that the ideal of political neutrality in American librarianship creates a vacuum that is filled by the most powerful and influential elements in society and causes the profession to be manipulated by the ruling elite. See Henry Blanke, "Librarianship and Political Values: Neutrality or Commitment?" (1989) 114 Lib. Jl. 39. In economics, the idea of the market as a neutral and self-regulating allocative mechanism is a central concept of the neo-classical model. This idea is challenged by the more normative viewpoint of political economy that emphasizes the value-laden aspects of economic processes.

<sup>92</sup> Heidegger, *supra* note 73 at 4.

electronic databases were promoted on the grounds of the promise of increased efficiency. The early proponents of electronic legal databases also tended to make broad claims as to how these new systems would improve the overall administration of justice,<sup>93</sup> act as an equalizer within the profession,<sup>94</sup> and result in cost savings that would ultimately benefit clients.<sup>95</sup> As historian Mark Poster observed,

The database may be the condition for the possibility of a truly educated populace, but technological determinists are alone in believing it will happen. New gadgets are developed in the context of existing needs, shaped by perceptions of situated individuals; they are restricted in their production and dissemination by ruling powers, and resisted by hegemonic cultural patterns and individual fears. The fact that it is technically possible for information to be available to everyone at little cost in no way ensures that it will be. In fact, under the aegis of private property all efforts are made to insure that it is not available.<sup>96</sup>

The electronic legal database was neither technologically inevitable, nor directly related to user needs as understood by the retrieval research available at the time. And while there seemed to be a developing consensus among the early commentators in favour of a non-proprietary approach, the effective control of the system had quietly passed from the organized bar to a private company.

## V. THE FOURTH STRAND: HISTORICAL CONTINUITY VERSUS DISCONTINUITY

The *information society* model is premised on a historical viewpoint that emphasizes a sharp break between the industrial era and the subsequent post-industrial, information age. In 1989, Daniel Bell wrote that “post-industrial society is not a projection or extrapolation of existing trends in Western society; it

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<sup>93</sup> See William Harrington, “What’s Happening in Computer Assisted Legal Research?” *supra* note 19 at 928, claiming, “Anything that efficiently improves the quantity and quality of the information available to judges and lawyers is bound to improve the administration of justice.”

<sup>94</sup> *Ibid* at 930. See also Diana Fitch McCabe, “Automated Legal Research” (1971) 54 *Judicature* 283 at 285, arguing, “The computer equalizes the resources at the command of each attorney. It takes away, substantially, the advantage the large firm lawyer, with his vast and comprehensive library has over the struggling practitioner who feels extravagant owning a set of West Reporters. It represents the most important single step yet taken towards making the practice of law, and the success thereof, a question of professional skill.”

<sup>95</sup> Harrington, “What’s Happening in Computer Assisted Legal Research?” *supra* note 19 at 929–930, predicting, “If the computer can help lawyers to use their time more productively, it may help them to lower the cost of some kinds of legal services”.

<sup>96</sup> Mark Poster, *The Mode of Information: Poststructuralism and Social Context* (Chicago: Chicago Press, 1990) at 72.

is a new principle of socio-technical organization and ways of life."<sup>97</sup> This notion of a sharp break with the industrial past is most evident in Bell's rejection of the labour theory of value in favour of a knowledge theory of value since in the post-industrial society, the crucial variables are information and knowledge, not labour and capital: "[w]hen knowledge becomes involved in some systematic form in the applied transformation of resources (through invention or social design), then one can say that knowledge, not labour, is the source of value."<sup>98</sup>

This approach tends to privilege the present period as overly exceptional. For historian Mark Poster, claims of a massive break with the past "reduces to insignificance those social dimensions that precede the break."<sup>99</sup> But while critics of post-industrialism emphasize a strong continuity with the existing capitalist relation of production, they do not mean to rule out alternative conceptualizations or theoretical frameworks that account for the massive technological and social changes brought about by rapid diffusion of information technology. Whatever weaknesses may be found in Bell's work, it remains important not to over-react to the point of denying that some important changes have indeed been taking place and that these changes are enabled by advances in computer and communications technologies. The historical framework used by Manuel Castells is reviewed as an example of a schema that seeks to reconcile rapid technological advances as well as the accompanying social, cultural, political and economic changes, without resorting to a totalizing break with the past. With his emphasis on historical continuity, Castells viewed informatization as a reflection of the logic of capitalist relations and as an outgrowth of global restructuring of production.<sup>100</sup>

The first chapter of Castells' *Informational City* presented a useful alternative to the dominant post-industrial thesis and its historical frameworks for situating

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<sup>97</sup> Daniel Bell, "The Third Technological Revolution, and its Possible Socioeconomic Consequences" (1989) 36 *Dissent* 164 at 167.

<sup>98</sup> Bell, *supra* note 11 at 506.

<sup>99</sup> Mark Poster, *supra* note 96 at 22.

<sup>100</sup> Castells' historical framework to the post-industrial / information age theory was informed by theorists influenced by the *Regulation School*. These writers asked how capitalism is able to remain stable and continue to secure the conditions for capital accumulation given increased tension and uncertainty. They attempt to identify a predominant *regime of accumulation* as well as its *mode of regulation*. The former looks at how production and consumption are organized, how income is distributed, and how the economy is calibrated; the latter looks at how social control is achieved through rules, norms, regulations and laws. *Regulation School* theorists generally argue that since the early 1980s a new regime of accumulation has emerged to replace one that had been in place since World War II. They argued that the "Fordist" regime of accumulation, which provided stability and growth until the mid-1970s, became increasingly unsustainable and had given way to a "post-Fordist" regime of accumulation.

the analysis of current changes in intellectual property policies. While Castells was primarily concerned with understanding the relationship between economic restructuring, information technology and spatial issues within an urban-regional setting, his theoretical framework is readily generalizable to other contexts. He began the *Informational City* by identifying two phenomena that together form the fundamental matrix of institutional and economic organization in contemporary society. First is the emergence of a new mode of socio-technical organization, which he named the 'informational mode of development'. Second is the restructuring of capitalism in the late 1970s and 1980s in response to the structural crises of the 1970s. Central to this framework is the distinction between *modes of production* and *modes of development*.

While the mode of production, particularly the social relations of production within it, determines how the surplus is appropriated and distributed, the level of the surplus is a separate issue. The later is determined by the productivity of the process of production, which is characterized by technical relationships. Castells' *modes of development* are those technological arrangements through which labour acts on matter to generate the product, thereby determining the level of surplus.

Castells differentiated various modes of development by looking at "the element that is fundamental in determining the productivity of the production process."<sup>101</sup> For example, Castells pointed to quantitative increases in land and labour in the agrarian mode and new energy sources in the industrial. For the informational mode of development, the quality of knowledge is fundamental to productivity. Avoiding the trap of information age exceptionalism, Castells acknowledged that "knowledge intervenes in all modes of development, since the process of production is always based on some level of knowledge."<sup>102</sup> But in the informational mode of development, knowledge intervenes on knowledge itself, thereby posing a significant difference with previous modes of development. Tessa Morris-Suzuki pointed out another difference. She agreed that knowledge has long been an essential element of the production process, but she added that "for much of history, its significance has been obscured by the fact that it could play a part in production only when embodied in the worker or in the machine."<sup>103</sup>

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<sup>101</sup> *Ibid.* at 10.

<sup>102</sup> *Ibid.*

<sup>103</sup> Tessa Morris-Suzuki, "Robots and Capitalism" in Jim Davis et. al., eds., *Cutting Edge: Technology, Information Capitalism and Social Revolution* (London: Verso, 1997) 13 at 16. Reprint from (September/October 1984) 147 *New Left Review*. The centrality of knowledge in the production process was also emphasized by David Teece, *Managing Intellectual Capital: Organizational, Strategic and Policy Dimensions* (Oxford: Oxford University Press, 2000) at 3, describing the "development and astute deployment and utilization of intangible assets, of

In Castells' framework, *modes of production* and *modes of development* interact; they do not overlap. Accordingly, the conclusion that post-industrial society (or the informational mode of development) replaces or somehow supersedes capitalism is rejected. Castells recognized a dual nature in the relationship between *modes of development* and *modes of production*. On the one hand, the former are said to evolve according to their own logic, they do not respond mechanically to the demands of the latter. But on the other hand, Castells recognizes that technical relationships are historically subordinate to social relations of production,<sup>104</sup> and so are molded in their structure and orientation by the restructuring process. While at first glance this dualism may seem contradictory, it is a subtle recognition of the open and shifting possibilities in the relationships between *modes of production* and *modes of development*. By way of example, Castells points to how dominant social interests may seek to spoil their technical potential through an orientation to narrow and secretive military applications of technology. Another example of the relationship is the hampering of the information transfer process through censorship or restrictive intellectual property rules.

In the *informational mode of development*, information processing becomes a key component of new productive forces. In such a case, Castells pointed to a close relationship between a society's symbolic capacity and its developmental process:

The more a society facilitates the exchange of information flows, and the decentralized generation and distribution of information, the greater will be its collective symbolic capacity. It is this capacity which underlies the enhancement and diffusion of information technologies, and thus the development of productive forces.<sup>105</sup>

The literature on the information society is replete with references to how information technology is an important determinant of technological progress. But by examining forces of production in isolation from a consideration of the relations of production, the model tends to reify information technology. By considering information technology as a productive force not as a phenomenon in itself, but as it is in tension with existing relations of production, the *information-for-society* model avoids the reification of information technology that led Herbert Marcuse to observe:

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which knowledge, competence, and intellectual property are the most significant" as the new source of competitive differentiation and basis for wealth creation.

<sup>104</sup> Castells' fuller argument is that in addition to *relations of production*, one must also account for relations of *power* (founded upon the state as a coercive force) and experience (founded upon gender relationships). While Castells noted that social phenomena are framed as instances of interaction between relations of production, power and experience, he limits his further discussion to the structure and logic of the production process due to his particular research interest (*supra* note 2 at 8).

<sup>105</sup> *Ibid.* at 15-16.

The universal effectiveness and productivity of the apparatus under which [man and nature] are subsumed veil the particular interests that organize the apparatus. In other words, technology has become the great vehicle of *reification*—reification in its most mature and effective form. The social position of the individual and his relation to others appear not only to be determined by objective qualities and laws, but these qualities and laws seem to lose their mysterious and uncontrollable character; they appear as calculable manifestations of (scientific) rationality.<sup>106</sup>

The other major component of Castells' framework is the restructuring of capitalism.<sup>107</sup> Many advocates of post-industrialism who argue that a full-scale social transformation has indeed occurred miss this distinction, between the restructuring of a social system and the transformation of the social system itself. Castells noted that a restructuring leads to a new manifestation of the system with new institutional rules which in turn induce another set of contradictions, potentially leading to another restructuring. He argued that such a restructuring occurred as a result of the Depression and World War II, leading to a new form of capitalism that was different from the earlier *laissez-faire* model.<sup>108</sup> Castells described this emerging phase of capitalism, which had come to characterize most of the international economic system by the late 1980s, as having three essential elements. First, the social pact, which formed the basis of the previous restructuring, was negated. This negation was accomplished via "the appropriation by capital of a significantly higher share of surplus from the production process," and is manifest through higher productivity derived from technological innovation, lower wages, reduced social benefits, decentralization of production, the weakening of unions and the restructuring of labour markets.<sup>109</sup> The second element in the new transformation was the trend toward deregulation accompanied by privatization of the public sector, regressive tax policy changes and the stimulation of a high-technology defense sector. These changes are

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<sup>106</sup> *Supra* note 76 at 9.

<sup>107</sup> When social systems experience a structural crisis, as a result of historical events acting on their specific contradictions, they are compelled either to change their goals, or to change their means in order to overcome the crisis. When the system changes its goals (or structural principles of performance), actually becoming a different system, there is a process of social transformation. When the system changes the institutionalized means by which it aims to achieve its systemic goals, there is a process of social restructuring" (*supra* note 2 at 21).

<sup>108</sup> This transformation was characterized by three structural modifications: (1) a social pact between labour and capital; (2) increased intervention of the state in the economic sphere in the form of regulation and the stimulation of demand; and (3) control of the international economic order through the creation of a new set of institutions. This form of "state-regulated capitalism" resulted in strong economic growth into the early 1970s. By the mid-1970s these same structural elements became intertwined with a series of crises which ultimately called for yet another restructuring.

<sup>109</sup> *Supra* note 2 at 23–25.

characterized as a shifting of emphasis “from political legitimation and social redistribution to political domination and capital accumulation.”<sup>110</sup>

While the first two elements take on different forms and demonstrate national differences, the third element, commonly referred to as “globalization”, is arguably the most significant because it cuts across national boundaries. In recent years, “The accelerated internationalization of all economic processes to increase profitability”<sup>111</sup> has been a driving force in the restructuring of the intellectual property law regime in recent years.<sup>112</sup> The pressures resulting from internationalization have also had profound influences on the organization of large law firms.<sup>113</sup>

By stressing continuity with existing capitalist relations, albeit under circumstances of rapid technological change, the *information-for-society* model is able to provide a lens for policy analysis that helps situate the changes taking place in the current policy environment within a broader historical framework. By avoiding the “information-age exceptionalism” inherent in mainstream *information society* theory, policymakers are able to better sort out and critically evaluate the claims made by proponents of expansionary proprietary policies.

## VI. THE FIFTH STRAND: THE ECONOMICS OF INFORMATION

In terms of economic viewpoint, the *information society* model promotes the “free market” as the ideal allocative mechanism for the production and distribution of information. The law of intellectual property governs private property rights in information and traditional intellectual property theory is deeply rooted in a set of assumptions that are derived from economic analysis.

The first assumption is that the free market system is the appropriate allocation mechanism to guide the creation and dissemination of socially useful in-

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<sup>110</sup> *Ibid.* at 25.

<sup>111</sup> *Ibid.* at 26.

<sup>112</sup> For a similar analysis, see David Harvey, *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change* (Oxford: Basil Blackwell, 1990), which characterizes the transition as one from Fordism to a regime of flexible accumulation and presents a closely related analysis also rooted in the Regulation School. Harvey argues that there has been a “sea-change in the surface appearance of capitalism since 1973, even though the underlying logic of capitalist accumulation and its crises-tendencies remain the same” (at 189). Harvey characterizes “flexible accumulation” as “...a direct confrontation with the rigidities of Fordism. It rests on flexibility with respect to labour processes, labour markets, products and patterns of consumption. It is characterized by the emergence of entirely new sectors of production, new ways of providing financial services, new markets, and, above all, greatly intensified rates of commercial, technological, and organizational innovation” (at 127).

<sup>113</sup> See Carole Silver, “Globalization and the U.S. Market in Legal Services—Shifting Identities” (2000) 31 *Law and Policy in International Business* 1093.



formation- and knowledge-based products and services. The second is that information- and knowledge-based products and services will be under-produced without a guarantee of sufficient market-based financial incentives to creators and owners. The third, and most recent assumption, is that an expansion of property rights is necessary in order to protect these market-based interests from being undermined by acts of appropriation made possible by the nature of digital technology. These assumptions underlying the *information society* model provide the justification for a broad range of new technological and legal restrictions on the use and transfer of information.

In contrast, the *information-for-society* model rejects the “free-market” allocation model and favours an approach rooted in the tradition of Marxian political economy. Edmund Phelps defined political economy as the study of society’s operation of its economy and the structure of rewards available to the participants in the social economy. Political economy has both a positive and normative side; while the positive side studies the system of rewards as they are, “[T]he normative side studies the structures of rewards ... as they would be if the society introduced different economic institutions or government policies, ...or if society implemented this or that moral standard for choosing among alternative feasible reward structures, in the desire for some brand of justice.”<sup>114</sup>

Phelps noted the critical nature of normative political economy: prevailing reward structures and underlying economic mechanisms are not taken as given; they are instead inspected to see if they fall short by society’s standards. This inquiry is purposeful as “the driving idea behind normative political economy is the belief that societies can change their economic institutions...in response to persuasive objections to the prevailing mechanisms and compelling arguments for different ones.”<sup>115</sup> Historically, economic analysis has played a crucial role in informing intellectual property policy. In their often-cited formulation of the economic justification for intellectual property law, William Landes and Richard Posner developed a positive economic model of copyright protection.<sup>116</sup> Their model attempted to explain copyright law as a means for promoting the efficient allocation of resources, and is based on the presence of a trade-off between (1) limiting access to works, and (2) providing incentives to create works. The model is guided by the assumption that the law’s “principal legal doctrines must, at least approximately, maximize the benefits from creating additional works minus both the losses from limiting access and the costs of administering

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<sup>114</sup> Edmund Phelps, *Political Economy: An Introductory Text* (New York: W.W. Norton & Co, 1985) at 27.

<sup>115</sup> *Ibid.* at 28.

<sup>116</sup> William M Landes & Richard A. Posner “An Economic Analysis of Copyright Law” (1989) 18 *Jl Leg. Stud.* 325.

copyright protection."<sup>117</sup> This trade-off is often referred to as a "balancing" of interests between the rights of owners and users.<sup>118</sup>

But there is disagreement as to how much intervention into the market is necessary to accomplish the goal of providing incentives. The general formulation assumes first that private producers have an incentive to invest in innovation only if they receive an appropriate financial return, and second, that there is an optimal balance between the creation and dissemination of intellectual property. While Besen and Raskind acknowledged that "the less that innovation depends on the resources invested and the potential economic rewards, the more limited is the case for granting substantial rights to creators",<sup>119</sup> their analysis remains primarily focused on the issue of economic incentives. The possibility that there may be motivations for innovations beyond economic incentives becomes lost as does the possibility that economic incentives may accrue through legal mechanisms other than property rights.

The positive economic model typifies the reliance placed on an efficiency-centered, cost-benefit analysis; in practice, however, the losses from limiting access are not as susceptible to precise quantitative measurement as are the financial benefits accruing to the owners of the information commodity. Indeed, cost benefit analysis as a mode of policy analysis has come under increased criticism because it fails to account for qualitative factors.<sup>120</sup>

A further level of analysis is needed that admits a normative evaluation, and this gap is filled by analysis rooted in political economy. Proponents of what is often termed "radical political economy" have begun to present such an alternative. Going beyond efficiency considerations, Ronald Bettig challenged the foundations upon which the traditional economic analysis of copyright law is based. He questioned "the validity of the two basic philosophical justifications

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<sup>117</sup> *Ibid.* at 326.

<sup>118</sup> Stanley Besen and Leo Raskind reiterated this justification for intellectual property laws in economic terms; government needs to support innovation and encourage creative activity. They defined the objective of intellectual property rights as the creation of incentives that maximize the difference between the value of the intellectual property that is created and used and the social cost of its creation, including the cost of administering the system. Stanley Besen & Leo J. Raskind, "An Introduction to the Law and Economics of Intellectual Property" (1991) 5 *Jl. Economic Perspectives* 3 at 5.

<sup>119</sup> *Ibid.* at 6.

<sup>120</sup> As Margaret Radin observed: "Reasoning in market rhetoric, with its characterization of everything that people value as monetizable and fungible, tends to make it easy to ignore these other 'costs.' Money costs and easily monetizable matters are at the center of the map, and personal and community disruption are at the edges. Because it tends to ignore 'costs' that are not readily monetizable, commodification-talk tends to err on the side of alienation." Margaret Radin, *Contested Commodities* (Cambridge, MA: Harvard University Press, 1996) at 85.

for granting private intellectual property rights: first, that these rights encourage the production and dissemination of artistic and intellectual creativity through pecuniary rewards to actual creators; and second, that they stimulate the dissemination of this work to the benefit of society as a whole."<sup>121</sup> Bettig argued that the intellectual property system results in an unequal distribution of the rewards for creativity, resulting in detriment to actual creators.<sup>122</sup>

While the information society model views the "public goods" nature of information as a problematic market failure that needs to be corrected, the *information-for-society* model views the public provision of information goods as a social goal.

## VII. THE SIXTH STRAND: CLASS, STRATIFICATION THE WORK PROCESS

The *information society* model presents an overly optimistic account of how new information technologies will affect social stratification, the division of labour in society and individual work processes. The promises of a more democratic world that values knowledge and provides full employment, more leisure time, and higher productivity are powerful mechanisms. This vision has been shaped by Daniel Bell, as well as by contemporaries such as Alvin Toffler,<sup>123</sup> who provided an exemplar of how information society enthusiasts present optimistic visions of a better world. For Toffler, the computer chip will lead to a "third wave" society marked by local control and increased democracy, all without the need for mass uprisings or questioning of capitalism.<sup>124</sup>

In contrast, the *information-for-society* model is concerned with the widening stratification in the 'information society,' and is accompanied by a less optimis-

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<sup>121</sup> Ronald Bettig, *Copyrighting Culture: The Political Economy of Intellectual Property* (Boulder, CO: Westview Press, 1996) at 44.

<sup>122</sup> For a similar analysis see James Boyle, *Shamans, Software, And Spleens: Law and the Construction of the Information Society* (Cambridge, MA: Harvard University Press, 1996), which discarded the "romantic entitlement theory of authorship" because it led to too many intellectual property rights in the wrong hands and devalues many collective efforts. Boyle emphasized the need for a social theory suited to democratic values in the information age.

<sup>123</sup> Alvin Toffler, *The Third Wave* (New York: Bantam Books, 1980).

<sup>124</sup> See Bill Gates, *The Road Ahead* (London: Viking, 1995), setting forth a prognosis of "boundless enthusiasm" that also encapsulates this viewpoint. This optimistic vision has not been limited to the United States. See also Yoneji Masuda, *The Information Society as Postindustrial Society* (Bethesda, MD: World Futures Society, 1981), providing an exemplar of the vision of computopia, a new type of society in which creativity replaces material consumption as a driving force.

tic account of the impact of technology on the labour process.<sup>125</sup> The issue of *deskilling vs reskilling*, also referred to as the “Bell-Braverman debate” has continued to frame issues about the nature of work in contemporary society:

The stage was set for a major confrontation between Braverman and Bell, for Braverman’s work directly contradicted Bell’s scenario in almost every particular. That is, where Bell forecast a significant reorganization of the workplace in the new ‘game between persons,’ Braverman saw only further centralization and management authoritarianism. Where Bell projected a workforce that would be considerably ‘upskilled,’ Braverman insisted that the workers would be further ‘deskilled.’ Where Bell glimpsed only more regarding and fulfilling work, Braverman noticed intensifying worker alienation and the steady ‘degradation’ of ‘work.’<sup>126</sup>

In fact, both are probably true in different circumstances and in different contexts. The issue of deskilling versus reskilling has continued to frame issues about the nature of work in contemporary society. But there is increasing agreement that both positions are probably true in different circumstances and in different contexts. To use this shifting approach is not to say that the truth lies somewhere in between Braverman’s and Bell’s accounts. As Manuel Castells pointed out, there is an increasing polarity between a core work force of elite information managers and “a disposable labor force that can be automated and /or hired / fired/ offshored, depending upon market demand and labor costs, whenever core management finds it necessary to do so.”<sup>127</sup> In asking what effect information technology will have upon the “grounds of knowledge” as it is applied to the production process, Shoshanna Zuboff rejected both the deskilling and reskilling scenario in favour of a third approach.<sup>128</sup> She argued that “information technology is characterized by a fundamental duality that has not yet

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<sup>125</sup> See Harry Braverman, *Labor And Monopoly Capital: The Degradation of Work in the Twentieth Century* (New York: Monthly Review Press 1974); Paul Thompson, *The Nature of Work: An Introduction to Debates on the Labour Process* 2<sup>nd</sup> ed. (London: Macmillan 1989); and Richard Edwards, *Contested Terrain: The Transformation of the Workplace in the Twentieth Century* (London: Heinemann, 1979).

<sup>126</sup> *Supra* note 10 at 113.

<sup>127</sup> *Ibid.* at 272.

<sup>128</sup> Shoshana Zuboff, *In the Age of the Smart Machine: The Future of Work and Power* (New York: Basic Books, 1988). Zuboff stated: “By redefining the grounds of knowledge from which competent behavior is derived, new information technology lifts skill from its historical dependence upon a labouring sentient body. While it is true that computer-based automation continues to displace the human body and its know-how (a process that has come to be known as *deskilling*), the informing power of the technology simultaneously creates pressure for a profound *reskilling*” (at 57).

been fully appreciated",<sup>129</sup> and she made a careful distinction between "automating" and "informating".<sup>130</sup>

Building on Zuboff's recognition of the contingent nature of deskilling and reskilling, Manuel Castells placed the debate in a historical context by identifying three stages of office work, and suggested that a fourth may be emerging.<sup>131</sup> How these changing conditions apply to work processes in the field of law is a critical question that warrants further research. Still, some preliminary observations may be made about the changes technology induced in the workplace.

The electronic legal database enhances the ability to engage in fine-grained time keeping, along with maintaining trails to a particular task. While this capacity is marketed as an efficient means for allocating costs to different projects, it also acts as a surveillance device, increasing the amount of information that is captured about the work patterns of employees.<sup>132</sup> Andrew Clement described

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<sup>129</sup> *Ibid.* at 9.

<sup>130</sup> *Ibid.* Zuboff stated, "On the one hand, the technology can be applied to automating operations according to a logic that hardly differs from the 19<sup>th</sup> century machine system—replace the human body with a technology that enables the same processes to be performed with more continuity and control. On the other, the same technology simultaneously generates information about the underlying productive and administrative process through which an organization accomplishes its work." She pointed out that the two capacities are not opposites, but are hierarchically integrated: "Informating derives from and builds upon automation. Automation is a necessary, but not sufficient condition for informating" (at 11).

<sup>131</sup> Manuel Castells, *The Rise of the Networked Society* (Cambridge, MA: Blackwell, 1996) at 246–247. (In the first stage, present in the 1960s and 1970s, mainframes were used for the batch processing of data. Specialists in centralized computing centers were the hubs of a rigid and hierarchical system of control. In this period, the work became standardized and routine. In the second stage, microcomputers made their appearance in the early 1980s. While they were still supported by centralized data banks and support staffs, employees took more control of the work process through direct interaction with the computer. By the mid-1980s advances in telecommunications and microcomputers led to networks of workstations. In this third phase, multiple microcomputers were able to interact with each other as well as mainframes. Castells envisioned an emerging fourth stage, that of the mobile office in which tasks may be performed in alternative locations via networking and transmitting devices. Castells argued these developments will enhance the logic of development he is proposing and will deepen the transformation of work as he describes. He also concurred with Braverman's assessment of deskilling in the first phase, but argues that the second and third stages were very different environments and that further investigation is needed.)

<sup>132</sup> See the promotional materials for the LexisNexis version of *Time Matters* ("a complete practice management system that is fully integrated with powerful LexisNexis content") Available at <http://www.lexisnexis.com/timematters/features.shtml> (accessed 19 July 2004). The materials describe how information from the following areas may be combined: Legal research, Case/client management, Calendar, e-mail and task management, Docketing, Document management, Document automation, and Billing/expense tracking. While the efficiency-enhancing aspects of these capabilities are emphasized, the implications for enhanced managerial control and tracking are obvious. See also *TimeMatters White Paper* at

the process in which “those who work with information in large organizations are ...being subjected to greater managerial control through their use of information systems”,<sup>133</sup> and argued that “[o]ffice automation greatly increases the ability of managers to extend their control over subordinates in ways that were never possible before.”<sup>134</sup>

In the legal setting, databases should no longer be thought of as one-way information systems from which a user may extract data to use in the production of new knowledge. The systems are developing into two-way monitoring systems where data is captured about the user every time the system is accessed. These shifts take place in an environment marked by the enhanced capability of technical systems to both rationalize and monitor routine workplace activities at ever-higher levels of the organizational structure.

### VIII. THE SEVENTH STRAND: THE IDEOLOGY OF THE INFORMATION AGE

The *information society* model is based on an implicit assumption, best characterized as the “*End of Ideology Thesis*,” that negates the need for critical inquiry and leads to the uncritical acceptance of the above strands in a manner that may be called the mainstream ideology of the information age. In contrast, the *information-for-society* model explicitly recognizes an ideology of the information age and seeks to develop counter-ideologies. The various components of these assumptions have been discussed throughout, but a consistent, yet unspoken, theme running throughout all of these threads is a lack of critical analysis, a lack of questioning the possibilities enabled by rapid technological advances. This blind spot necessarily constrains not only policy options themselves, but also the discourse surrounding policy. Despite the democratic potentials promised by the rapid diffusion of the Internet, it seems that the model of e-commerce is beginning to dominate the new media, pushing alternative models for its development to the side in the process. These constraints may together be seen as constitutive of a dominant ideology of the information age, but it is a

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<http://www.lexisnexis.com/timematters/whitepaper.pdf> and other promotional materials and product descriptions at <http://www.timematters.com/> (accessed 19 July 2004).

<sup>133</sup> Andrew Clement, “Office Automation and the Technical Control of Information Workers” in *The Political Economy of Information*, Vincent Mosco & Janet Wasko, eds., (Madison: University of Wisconsin Press, 1988) 217 at 218.

<sup>134</sup> *Ibid* at 223. Clement said, “The shift to an electronic infrastructure for office work allows managers to adopt additional control mechanisms that are embedded within the computer systems themselves. Such technical forms of control are well established in some areas of clerical work . . . As automation is introduced at progressively higher organizational levels, there are already signs that sophisticated versions of the same basic techniques are being applied there as well.”

surreptitious ideology that does not portray itself as such. Indeed, a crucial component of the ideology of the information age is a denial of its status *qua* ideology, an aspect of Daniel Bell's and Seymour Lipset's "End of Ideology" formulation.<sup>135</sup>

While the *End of Ideology* thesis was rapidly discredited by the turmoil of the 1960s, it has staged a comeback, albeit in disguised form, through Bell's post-industrial / information society thesis. Jennifer Slack argued that a dominant ideology of the information age could be identified and she sought to identify its "theoretical underpinnings, its reach, its mechanisms of reproduction and its consequences."<sup>136</sup> Slack claimed that in much of the existing literature, the information age was assumed as a set of social practices that were mirrored in their description. There was a correspondence between reality and descriptions of it. In contrast, the articles in her collection showed how the descriptions of the information age were themselves constitutive aspects of the information age. She argued that "descriptions of the information age are ideological, and ideology permeates what the information age is, how it is lived, how it is experienced, and what it will become."<sup>137</sup> Rather than assume a correspondence between social practices and their descriptions, she saw ideology as intervening in this relationship.

The dominant ideology of the information age has been popular because it promises a more democratic world that values knowledge, provides full employment, permits more leisure time, and creates higher productivity—all powerful arguments. For example, Alvin Toffler's *Third Wave* exemplifies how the dominant ideology presents optimistic visions of a better society. For Toffler, the computer chip will lead to a *Third Wave* society marked by local control and increased democracy, all without the need for mass uprisings or questioning capitalism. Yet, as T.R. Young noted, "Toffler's vision is historically, sociologically, and politically naïve."<sup>138</sup> While Toffler ignored questions of power, Young argued that "any knowledge process mediated by an existing social structure will tend to reproduce that structure."<sup>139</sup> Young's analysis of the reception of the

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<sup>135</sup> See Daniel Bell, *The End of Ideology* 2<sup>nd</sup> ed. (Cambridge, MA: Harvard University Press, 1988), reprint with new Afterword by the Author; see also Seymour Lipset, *Political Man* (London: Heinemann, 1963).

<sup>136</sup> Jennifer Daryl Slack, "The Information Age as Ideology: An Introduction" in Jennifer Daryl Slack & Fred Fejes, eds., *The Ideology of the Information Age* (Norwood, N.J., Ablex, 1987) at 3.

<sup>137</sup> *Ibid.* at 2.

<sup>138</sup> T.R. Young, "Information, Ideology, and Political Reality: Against Toffler" in Jennifer Daryl Slack & Fred Fejes, eds., *The Ideology of the Information Age*, *supra* note 137 at 118–132.

<sup>139</sup> *Ibid.*

*Third Wave* was a case study in how hegemony operates through media institutions such as newspapers, magazines, book clubs and press agencies, which all enthusiastically hailed the arrival of Toffler's work.

When the underlying assumptions of the "post-industrial society as information society" thesis are made explicit and critically interrogated, various issues will come into view and percolate to the surface. Then, as previously argued, technology need not be viewed as an autonomous, neutral and determining force; perhaps, to the contrary, it has substantive values that are constituted through social and political arrangements. The commodification of information need not be accepted as inevitable; perhaps the "public goods" nature of information means that the social provision of information goods and services remains desirable. Nor must the rapid growth and diffusion of information technology necessarily result in "information age exceptionalism;" as these changes may be historically situated in a more continuous relationship with the industrial past, indeed within capitalist relations itself. However, this redefinition of the underlying theoretical framework, which is needed to make sense of a rapidly changing society, must include an explicit recognition of the role of ideology, which can then be subjected to critique.

## IX. THE TOTALITY OF THE SEVEN STRANDS: IMPLICATIONS FOR LEGAL KNOWLEDGE

An overarching difference between the *information society* and *information-for-society* models is based on the interrelationship of their components. Information society theory is premised on Daniel Bell's notion of "disjunction of realms". Bell argued against holistic modes and assumed a disjunction between culture and social structure. While "[a] Functionalist or a Marxist view sees these two either as integrated, with value systems regulating behavior, or as a totality, in which the substructure of the material world "determines" the political, legal and cultural orders", Bell argued that "such views confuse the different rhythms of change in the different levels of the history of societies."<sup>140</sup>

In contrast to Bell's emphasis on the disjunction, the critical model is holistic;<sup>141</sup> its components are interrelated and form part of the broader totality that Bell rejects.

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<sup>140</sup> Bell, *The End of Ideology*, *supra* note 135 at 413 [emphasis added].

<sup>141</sup> Malcolm Waters defines holism as "an orientation in which all aspects of society are contained within a single system, in which these elements are evenly and continuously connected and in which the system is driven through time by a unitary dynamic or logic. Malcolm Waters, *Daniel Bell* [Key Sociologists Series] (London: Verso, 1996) at 28, arguing at 28-29 that Bell located the origins of sociological holism in Hegel and found it in subsequent theorists as diverse as Karl Marx and Talcott Parsons.



In the emphasized portion of the quoted passage, Bell conflated a particularly orthodox reading of Marx's base/superstructure duality with the much broader range of theories upholding the concept of totality.<sup>142</sup> One need not subscribe to a deterministic version of the relationship between the economic base and the political, legal and cultural orders in order to view these elements as part of a holistic totality. Totality does not imply any particular determinist relationship among the components of the whole. Bell's theory of disjunction of realms misses this point. The disjunction between social structure and culture also obscures the fact that "culture is produced within relationships of domination and subordination and thus reproduces or resists existing structures of power."<sup>143</sup> Martin Jay pointed out that holistic perspectives "have been developed by a wide range of thinkers including Karl Mannheim, Othmar Spann, Talcott Parsons, and the adherents of such movements as structuralism, Gestalt psychology, and systems theory."<sup>144</sup> In his inaugural address as Director of the Institute for Social Research, Max Horkheimer emphasized the importance of such interrelations.<sup>145</sup> The *information-for-society* model is situated within the research program that Horkheimer was outlining.

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<sup>142</sup> This particular reading of Marx has also been identified as the source of antagonism between political economy and cultural studies. See Nicholas Garnham, "Political Economy and the Practice of Cultural Studies" in Marjorie Ferguson & Peter Golding, eds., *Cultural Studies in Question* (Thousand Oaks, CA: Sage, 1977) at 57.

<sup>143</sup> Douglas Kellner, "Overcoming the Divide: Cultural Studies and Political Economy" in Marjorie Ferguson & Peter Golding, *ibid.* at 105. For Georg Lukacs, what differentiates Marxism from bourgeois thought is not the "primacy of economic motives in historical explanation", but rather "the point of view of totality". Georg Lukacs, *History and Class Consciousness: Studies in Marxist Dialectics* (Cambridge, MA: MIT Press, 1971) at 27 [trans. by Rodney Livingstone].

<sup>144</sup> Martin Jay, *Marxism and Totality: The Adventures of a Concept from Lukacs to Habermas* (Berkeley: University of California Press, 1984) at 14.

<sup>145</sup> Max Horkheimer, "The State of Contemporary Social Philosophy and the Tasks of an Institute for Social Research" in Stephen Eric Bronner & Douglas MacKay Kellner, eds., *Critical Theory and Society: A Reader* (New York: Routledge, 1989) at 33–34 [trans. by Peter Wagner]. Horkheimer argued: "There is one question around which the discussion of society has started to crystallize itself ever more clearly, in social philosophy, narrowly understood, as well as in the circles of sociology. It is not just a fashionable question, but one which presents an actualized version of some of the most ancient and important philosophical problems: the question of the connection between the economic life of society, the psychological development of its individuals and the changes within specific areas of culture to which belong not only the intellectual legacy of the sciences, art and religion, but also law, customs, fashion, public opinion, sports, entertainments, lifestyles, and so on. The intention to study these three processes presents merely an updated version by way of contemporary methodologies and the present state of our knowledge, of the ancient question as to the relation of particular existence and universal reason, of the real and the idea, of life and spirit —adapted to a new problematic."

The framework advanced in the preceding sections may be applied to the modern copyright policy environment, to technological developments in the area of legal research, and to work processes and structures within organizations working in the field of law. In all of these cases, the ownership of the building blocks of legal knowledge, the rise of the electronic legal database, and the nature of legal work are closely related

Recent developments in the area of copyright law have been well covered in articles<sup>146</sup> and monographs<sup>147</sup> and space limitations permit only a cursory review. In an earlier article, I argued:

Contemporary copyright policy is rooted in a particular set of assumptions, about the nature and character of information, information technology, and information labour, that relies on notions of economic efficiency and which results in pressures for heightened levels of commodification and proprietary restrictions on the use and dissemination of information.<sup>148</sup>

The current copyright policy environment may be characterized as a multi-dimensional assault against the traditional safety valves that had previously

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<sup>146</sup> See James Boyle, "A Politics of Intellectual Property: Environmentalism for the Net?" (1997) 47 Duke L.J. 87; Julie E. Cohen, "A Right to Read Anonymously: A Closer Look at 'Copyright Management' in Cyberspace" (1996) 28 Conn. L. Rev. 981; Marci Hamilton, "Copyright Duration Extension and the Dark Heart of Copyright" (1996) 14 Cardozo Arts & Ent. L.J. 655; Peter Jaszi, "Goodbye to All That—A Reluctant (and Perhaps Premature) Adieu to a Constitutionally-Grounded Discourse of Public Interest in Copyright Law" (1996) 29 Vand. J. Transnat'l L. 595; Jessica Litman, "The Public Domain" (1990) 39 Emory L.J. 965; Neil Netanel, "Copyright and a Democratic Civil Society" (1996) 106 Yale L.J. 283; Pamela Samuelson, "The U.S. Digital Agenda at WIPO" (1996) 37 Va. J. Int'l L. 36.

<sup>147</sup> See Ronald Bettig, *Copyrighting Culture: The Political Economy of Intellectual Property* (Boulder, CO: Westview Press, 1996); James Boyle, *supra* note 122; Jessica Litman, *Digital Copyright: Protecting Intellectual Property on the Internet* (Amherst, NY: Prometheus Books, 2001); David Bollier, *Silent Theft: The Private Plunder of our Commonwealth* (New York: Routledge, 2002); Siva Vaidhyanathan, *Copyrights and Copywrongs: The Rise of Intellectual Property and how it Threatens Creativity* (New York: New York University Press, 2001); Lawrence Lessig, *Free Culture: How Big Media Uses Technology and the Law to Lock Down Culture and Control Creativity* (New York: Penguin Press, 2004).

<sup>148</sup> Samuel E. Trosow, "The Illusive Search for Justificatory Theories: Copyright, Commodification and Capital" (2003) 16 Can. J. Law & Jur. 217, arguing, "These tendencies have been evidenced by a series of policy initiatives designed to enhance the ability of intellectual property owners to impose the logic of the market in an ever-widening number of instances, further enclosing the informational commons. While the historical justifications for intellectual property restrictions, largely rooted in utilitarian considerations of efficiency, show increasing signs of strain in the digital age, the predominant policy response has been to broaden proprietary rights in information at the expense of the traditional rights of users."

sought to mediate between the strong owners rights granted by the copyright monopoly and the rights of users to engage in the free flow of information.<sup>149</sup>

Two contemporary developments in copyright policy warrant special mention. First are the anti-circumvention provisions of the DMCA.<sup>150</sup> This measure not only prohibits the circumvention of technological measures that effectively control access to a work, but the broad range of devices are also prohibited including many which have uses other than copyright infringement. The provisions apply regardless of whether the information system being protected contains items that are outside of the scope of copyright law,<sup>151</sup> and the language has been widely criticized as overly broad and likely to proscribe many acts that are legitimate and lawful such as encryption research and reverse engineering.<sup>152</sup> The second is the continuing efforts of the database industry to create a *sui*

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<sup>149</sup> *Ibid.* at 220–221. Such traditional safety valves included notions such as fair dealing/ fair use, The idea-expression dichotomy, limited copyright terms, the originality requirement and the notion of a vibrant public domain. Six examples readily illustrate this trend: copyright term extension, new *sui generis* legal protections for databases and compilations, the anti-circumvention provisions of the Digital Millennium Copyright Act (DMCA), increased civil and criminal penalties for copyright infringement, the trend toward licensing and private ordering, and the growing internationalization of copyright standards along with the decreased ability of individual nations to maintain their own exceptions and limitations on owners rights.

<sup>150</sup> U.S. Public Law 105-304 as codified in 17 U.S.C. 1201, providing that “no person shall circumvent a technological measure that effectively controls access to a work protected by this title.” The DMCA also contains broad limitations on the manufacture and distribution of devices capable of circumventing technological measures that control access to protected works or that protect the rights of a copyright owner. These provisions have been widely criticized as overly broad and likely to proscribe many acts that are legitimate and lawful such as encryption research and reverse engineering. Since its enactment, civil and criminal enforcement actions have been brought that underline the opponents concerns regarding the chilling effect the measure would have on legitimate educational and research related uses of information. Similar measures are now under consideration in Canada as part of the ongoing consultation process on amendments to the Copyright Act that are being considered in order to bring the Canadian Copyright Act in compliance with the World Intellectual Property Organization, Copyright Treaty of 1996. (see *A Framework for Copyright Reform*, at <http://strategies.ic.gc.ca SSG/rp01101e.html>).

<sup>151</sup> For example, works in which the copyright term has expired, non-original works in which copyright does not even subsist, and uses which, under the circumstances would not constitute a copyright infringement by reason of the fair-use.

<sup>152</sup> See Pamela Samuelson “Intellectual Property and the Digital Economy: Why the Anti-Circumvention Regulations Need to be Revised” (1999) 14 *Berkeley Tech. L.J.* 519 and “Regulation of Technologies to Protect Copyrighted Works” (1996) 39 *Communications of the ACM* 17. The measure has also been criticized because of its privacy destructive nature. See Julie Cohen, “A Right to Read Anonymously: A Closer Look at ‘Copyright Management’ in Cyberspace” (1996) 28 *Conn. L. Rev.* 981.

*generis* database right along the lines of the European Union Database Directive.<sup>153</sup>

The drive towards *sui generis* database legislation as well as measures designed to prohibit the circumvention of technological protections for information systems are closely related to the increasing importance and widespread use of electronic databases for basic legal research activities. Robert Berring argued that the impact of electronic legal databases involves a change in the very structure of the legal literature.<sup>154</sup> He made the further point that "the structure of the literature implies the structure of the enterprise itself,"<sup>155</sup> and that this observation is particularly true in the law. While the idea of electronic legal database was first developed by a non-profit entity, the Ohio Bar Association, it quickly fell under the control of private firms such as Lexis-Nexis and West Publishing.<sup>156</sup> Elsewhere I have argued that the rise of the proprietary electronic legal database had profound implications for work processes within the legal profession, for the increased hierarchical nature of the profession itself as well as for a heightened commodification of legal services.<sup>157</sup>

Pressures for heightened proprietization of the artifacts of legal research are closely linked to the increasingly central role of the electronic database not only in the realm of legal research, but in the overall organization of legal practice.

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<sup>153</sup> Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the Legal Protection of Databases, 1996 O.J. L77-20. Article 7 of the Directive requires member states to adopt legislation providing statutory protection for databases and compilations: "Member States shall provide for a right for the maker of a database which shows that there has been qualitatively and/or quantitatively a substantial investment in either the obtaining, verification or presentation of the contents to prevent extraction and/or reutilization of the whole or of a substantial part, evaluated qualitatively and/or quantitatively, of the contents of that database." For criticism of *sui generis* database legislation in general, see Howard P. Knopf, "The Database Dilemma in Canada: Is 'Ultra' Copyright Required?" (1999) 48 U.N.B.L.J. 163; Stephen Maurer & Suzanne Scotchmer, "Database Protection: Is It Broken and Should We Fix It?" (1999) 284 Science Magazine 1129; and Jerome Reichman & Paul F. Uhler, "Database Protection at the Crossroads: Recent Developments and Their Impact on Science and Technology" (1999) 14 Berkeley Tech. L.J. 793.

<sup>154</sup> Robert Berring, "Full-Text Databases and Legal Research: Backing into the Future" (1986) 1 High Tech. L.J. 27 at 29.

<sup>155</sup> *Ibid.*

<sup>156</sup> See William G. Harrington, "Computers and Legal Research" and "What's Happening in Computer Assisted Legal Research?" *supra* note 19; and William G. Harrington, "A Brief History of Computer Assisted Legal Research" (1985) 77 Law Library Journal 543.

<sup>157</sup> See Samuel E. Trosow, "The Database and the Fields of Law: Are There New Divisions of Labour?" (2004) 69 Law Library Journal 63. See also Douglas Litowitz, "Young Lawyers and Alienation: A Look at the Legal Proletariat" (1996) 84 Ill B.J. 144, arguing that legal work is becoming increasingly proletarianized and that non-equity holding associates face heightened alienation from their work in firms.

The practice of law has historically been thought of as a craft. Practitioners apply a specialized body of knowledge in order to solve practical problems that arise in the legal system and different interpretations of legal meaning are prescribed through the legislatures and the courts. Law schools train lawyers to apply play various roles in these processes through applying legal principles. While various artifacts exist to aid in the training of lawyers and in the ultimate creation and interpretation of the law, the notion of legal knowledge is that which exists within the minds of the various practitioners, judges, legislators, law professors and law students. In this way, legal knowledge may be thought to be a stock, which is internal to the individual while legal information may be thought of as a flow, which is constantly interacting with the stock of knowledge to create a change in its state.

The subsuming of legal knowledge into the electronic database along with the corresponding pressures towards proprietization is rooted in the various assumptions of the *information society model*. Changes in intellectual property laws, like other changes in laws governing social relationships, do not arise in a vacuum but are embedded in a historical, political, social and economic context. The drive towards *sui generis* database legislation and the imposition of the anti-circumvention rules are instances of a broader strategy to develop an information policy regime that construes information and information technology in a manner compatible with the logic of commodification. Such a process is firmly rooted in this logic; it is not a new aspect of the information age. Proponents of a new "information economy" often gloss over the fact that the commodification of information is a deep reflection of, and arises out of, the economic logic of the industrial age.

Proponents of technological protection measures and *sui generis* database legislation adopt an approach to the construction of information that emphasizes its quantifiable aspect. Shapiro and Varian's definition of information is particularly applicable to how the discourse surrounding technological protection measures and database legislation has been conceptualized.<sup>158</sup> Such a narrow construction of information helps justify rampant commodification regardless of its social consequences. Data is constructed as an entity capable of precise measurement, not to aid in its use, but in order to facilitate an efficient pricing and payment mechanism, or for determining whether there has been a substantial extraction from a database in violation of that model. The qualitative aspects of the use of data, (e.g., how the data interacts with other information resources in the process of producing new knowledge) is marginalized. Using Buckland's terminology,<sup>159</sup> *sui generis* proponents understand "information as thing," but not "information as process," and certainly not "information as

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<sup>158</sup> Shapiro and Varian, *supra* note 49.

<sup>159</sup> Buckland, *supra* note 57.

knowledge.” And their construction of “information as thing” is limited to a particular type of thing—that is, a commodity.

The centrality of information in the automated production process, what Castells called the essential characteristic of the informational mode of development, requires a re-conceptualization of the rules regarding the ownership of information itself. From the point of view of intellectual property owners, this centrality of information points to the need for an expansionary intellectual property regime, particularly in the area of forms of information that are, in Morris-Suzuki’s words, churned out in a routine and monotonous manner. Such “industrial” information is found in the form of raw data contained in databases, the very type of information that existing copyright law, with its requirement of originality, does *not* protect. Highlighting the importance of intellectual property law to the process of production, Morris-Suzuki argued that the development of copyright and patent law “were crucial because the special properties of knowledge (its lack of material substance; the ease with which it can be copied and transmitted) mean that it can only acquire exchange value where institutional arrangements confer a degree of monopoly power on its owner.”<sup>160</sup>

The provision of legal services is becoming increasingly commodified and subject to the rationalist logics of the private market. This observation is not to imply that legal services were never commodities, nor to deny that legal services have traditionally been fee-based. But there have traditionally been counterpressures within the legal profession itself to slow down and even resist this logic of commodification. These counterpressures are tied in with the public service aspect of the legal work that has always been an important component of lawyers’ claims to professional status. But this publicly mediated aspect of professional services, along with the collegial, even craft nature of the legal enterprise is increasingly on a collision course with law, the valuable service commodity in the networked society. This trend runs in parallel with the commodification of the legal database as well as with the general rationalization of knowledge.

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<sup>160</sup> Morris-Suzuki, *supra* note 103 at 17.