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Ronald E. Day

## **Totality and Representation: A History of Knowledge Management Through European Documentation, Critical Modernity, and Post-Fordism [1]**

Abstract:

This article presents European documentalist, critical modernist, and Autonomous Marxist influenced post-Fordist views regarding the management of knowledge in mid and late twentieth century Western modernity and post-modernity, and the complex theoretical and ideological debates, especially concerning issues of language and community. The introduction and use for corporate, governmental, and social purposes of powerful information and communication technologies created conceptual and political tensions and theoretical debates. In this article, knowledge management, including the specific recent approach known as "Knowledge Management," is discussed as a social, cultural, political, and organizational issue, including the problematic feasibility of capturing and representing knowledge that is "tacit," "invisible," and is imperfectly representable. "Social capital" and "affective labor" are discussed as elements of "tacit" knowledge. Views of writers in the European documentalist, critical modernist, and Italian Autonomous Marxist influenced post-Fordist traditions, such as Otlet, Briet, Heidegger, Benjamin, Marazzi, and Negri, are discussed.[2]

### I. Introduction

The history of Knowledge Management[3] [4] has been well rehearsed in terms of a series of primary texts in management (see, Prichard, et. al., 2000). The social and historical context of these texts in larger cultural issues of managing knowledge, however, is not well established. To establish such a context is not an easy task, for such an account may take a series of forms, from recounting the rise of knowledge management from flexible management and just-in-time production systems, to that of looking at the epistemological components of knowledge management and the history of these components during the twentieth century.

The purpose of this paper is to give a historical and theoretical account of knowledge management in relation to critiques of production in Western modernity in the twentieth century, particularly in regard to the issues of language and

community. I will do so in terms of the texts of certain exemplary documentalists, philosophers, and social critics, attempting to sketch out the dialectical turns that, today, situate Knowledge Management as a recent symptom of attempts to manage knowledge through information and communication technologies in twentieth century modernity. In doing this, I hope to suggest that Knowledge Management is less of a management fad, and more, a symptom of a history of attempts to manage knowledge within instrumental, and largely capitalist, modes of production.

Throughout this paper, I will many times approach this history from the viewpoint of political critiques and resistances to knowledge management. I take this approach because Knowledge Management, as any dominant social and political power or discourse, tends to erase its historical and cultural contexts in order to naturalize its appearance, and so, for example, we are left today with a paucity of theoretical and cultural accounts for "Knowledge Management." To critically understand Knowledge Management it is necessary to position oneself in a theoretical dialectical relation to its practice rather than simply within it, and so, to reposition its literal capitalization within a theoretical and historical account of knowledge management.

Because of the large historical scope of this paper, covering the period of early to mid-century modernity (the second part of the paper) and late modernity or what could be called, "post-modernity" (the third part of the paper), by necessity I will have to summarily touch on what are often complex texts and oeuvres. I have, thus, included references to other works, as well as a rather extensive bibliography, in the hopes that this paper will serve for further reading and research. Given the "modern"/ "postmodern" layout to the article, the reader can also read the second and third parts of this article independently.

As Edgar Whitley has pointed out, knowledge management systems, as technical systems, can only store and manipulate knowledge that is codified and commodified (Whitley, 2000). This reliance upon organizational thought in the form of representable knowledge presupposes that organizations are rational structures, an assumption that was challenged in the late 1980s by deconstructionist readings of organizations (Linstead and Grafton-Small, 1989; Cooper, 1989) which claimed that formalist and instrumentalist descriptions of organizations and their language practices were rationalizations of non-rational events. As distinct from information management, knowledge management has historically often been the rather paradoxical attempt to "mine," organize, and manage previously conceived non-instrumental thought, thus attempting to capture in rational structures those "excessive," "irrational" organizational elements which deconstructionist readings had claimed were the basis for organizational community. These "excessive" elements to production, rooted in socially and linguistically affective and traditionally non-representable, and thus, difficult to quantify, activities in organizations and social life form in their totality what is often termed "human" or

“social” capital, but which we may call, by virtue of their traditionally exterior, but necessary, relation to production, “intellectual surplus.”

Understandings that see this intellectual surplus or excess as potentially manageable by management techniques and instrumental analyses, or as excessive and transgressive of these techniques and analyses, form two different understandings of thought and community as totality[5]. Viewed from a political standpoint, the former understanding of “intellectual surplus” and knowledge management traces modernist political trajectories that run through the history of the political Left and Right in modernity, transversing traditional capitalist regimes as well as recent “communist” regimes. Within political modernity in the twentieth century, unfortunately, knowledge management often must be understood in relation to desires to appropriate totality for the concentrated production of profit and the reproduction of wealth.

Against this tendency, one strain of Marxism, from the work of Walter Benjamin to Theodor Adorno to that of Autonomous Marxism in Italy, has traditionally attempted to articulate totality as excessive and even as self-evolving or “autonomous” outside of “capitalizing” modes of accumulation and exploitation. The complexity of this position when viewed through the lens of a larger culture dominated by capital becomes more intense, however, in so-called post-modernist organizational, management, and production models in the West, wherein excess is acknowledged in terms of cultural and individual difference, yet still for the concentrated production of profit and the reproduction of wealth. In post-modernist production models, the cultural politics of the Left are acknowledged, but for the purpose of preserving, and in ways that we will examine, extending, the form of traditional capitalism. This lopsided synthesis, which acknowledges autonomy, but only within the social forms and logic of capital production, gives rise to the politics and the economics of neo-liberalism today and, arguably, to policies of zero-tolerance for those who lie outside of, or who reject, its formal models for work, language, being, and community (De Giorgi, 2000).

Modernist debates on the relation of totality to social production may be understood according to two dominant and intersecting categories: that of language and that of community. Today, these categories foremost appear in regard to issues of information and communication. The modern understanding of information and communication connotes a sense of language as a mode of transmission or exchange in the being and the formation of community. In so far as language and community are, today, understood in their totality within a process of capital production, they are still understood in terms of instrumental reason. Habermas (1987), of course, has attempted to argue that democratic structures are based on a somewhat innate, common sense of “communicative” reason, rather than upon a strictly instrumental reason. It is unclear, however, if such an argument can be valid today, when in global neo-liberalism democratic reason and capitalist production are understood as interdependent, and indeed, sometimes, synonymous phenomena. One of the questions that this paper suggests is that of the social effects of such an equation,

particularly upon language and upon community. For, the recent, post-Fordist appropriation of the traditional bourgeois private sphere to capitalist production is reflected in the "mining" of previously "private knowledge" in the workplace and in "consumer outreach." As we will discuss, in an era of tighter labor and material resources and, simultaneously, increased competition and a shrinking consumer dollar, "Knowledge Management" involves not only the appropriation of workers' knowledge to organizational structure, but the incorporation of consumer wants and needs within the context of just-in-time production.

## II: Modernity and Totality

### European Documentation: Totality as Representation and Systemic Production

As I have been suggesting, a complete history of knowledge management must take into account the historical social and cultural grounds, as well as the technological developments and purposes, for representing thought and life within a context of production. In the development of information and communication technologies and of organizational techniques for managing knowledge, the historical phenomenon of European documentation was important in the early and middle parts of the twentieth century (McInerney and LeFevre, 2000). European documentation was important in that its proponents introduced grand narratives that linked social totality to technological and professional developments in information and communication, and thus it attempted to articulate a sense of knowledge management and production that was jointly technically and socially complete.

Paul Otlet is generally considered the father of European Documentation. Along with other world encyclopedists, such as H.G. Wells (Rayward, 1999), Otlet envisioned a global totality that essentially was bibliographic in nature. Though for Otlet there were other means for global totality to be fostered, such as a world monetary system (Otlet, 1929) and a world university (Otlet, 1920), the chief vision and achievement of Otlet's work was the creation of the Répertoire bibliographique universel (RBU), which at the time of its closure was a bibliographic inventory containing 18 million items (Cacaly, 1997), organized by an adaptation of the Dewey Decimal Classification system, named the Universal Decimal Classification system.

Two aspects of Otlet's work are notable for us here. First, as I have argued elsewhere (Day, 1997), the driving force for Otlet's work was a vision of world peace. Especially as articulated in his two magnum opuses, *Traité de documentation: Le livre sur le livre: Théorie et pratique* (1934) and *Monde: Essai d'universalisme: Connaissance du monde, sentiment du monde, action organisée et plan du monde* (1935), Otlet's belief was that books and other storage mediums contained true ideas or "facts." For Otlet, if all the facts about the world were collected together, men could settle their differences by appealing to those facts and

come to know one another. Global bibliography would, thus, eliminate conflict by promoting “science” and fostering communication.

The second aspect of Otlet's work that is notable for us is Otlet's metaphor for global documentation in the figure of the world brain (see Rayward, 1999). For Otlet, knowledge is an ideal essence that is representable through a physical body and is transmissible through a medium. Consequently, productive relations depend upon storing and mining knowledge, and upon transmitting or expressing it through written, spoken, and visual documents. Since Otlet's vision of knowledge organization has a utopian goal ending in closure (i.e., the attainment of absolute knowledge or of “science” throughout the world), it lacks the open flexibility and dynamics that would be seen in the work of the later documentalist Suzanne Briet's understanding of world bibliography as a large network made up of smaller networks linked by standards. In Otlet's work, global knowledge is made teleologically absolute by the belief that global bibliography should constitute the total re-presentation of the world through facts. Bibliography--in all its forms and media (the book, radio and television transmissions, etc.), and despite whatever forces and mutations that thought undergoes throughout its global and historical circulation--is positive knowledge destined toward a re-presentation of the world. The purpose of documentation, for Otlet, was to make true thought physically permanent and to atomically accumulate it until it formed an absolute totality that correctly represented the world. Surplus existed in the circulation of thought, but this difference was the problem that the science of documentation set out to resolve by means of standards and the organization of knowledge.

Suzanne Briet (a.k.a., "Madame Documentation") formed the second wave of European Documentalists, largely active just before and after the Second World War. At the conclusion of the first section of her book, *Qu'est-ce que la documentation?* (1951), Briet ridicules as a “dream” Otlet's understanding of universal bibliography and, instead, she valorizes the role of local collections in the global development of “science.” As I have argued elsewhere (Day, 2000b), Briet's conception of “science” is highly rhetorical, pointing less to sets of actual methods or practices, and more to an ideology of global standardization and post-war industrial expansion.

In terms of knowledge management, what is important in Briet's texts is that for Briet knowledge is not only contained in documents, but, more importantly, knowledge could, and indeed should, be organized within “dynamic,” “rapid,” and “precise” systems, grounded in standardization and documentary organization (Briet, 1951). In Briet's work, Otlet's sense of knowledge as a resource for social utopia gives way to knowledge as a resource for industrial, “scientific” production. When Briet writes that documentation is a “new cultural technique” and “a need of our time” (Briet, 1951, 1954) she is emphasizing that the organization of knowledge in systems of production is both a symptom and a requirement of social organization within the cultural values of industrial modernity as a whole. This union of industrial and social organization around the cultural technique of

documentation is important because it foreshadows the role that information and communication technologies and organizational techniques have in a post-Fordist social environment. Briet claims that knowledge becomes “science” (i.e., it becomes dynamic, rapid, and precise) because of the assumed dynamic, rapid, and precise characteristics of those “scientific” techniques and technologies involved in such cultural processes as documentation.

The French term, "technique" for Briet meant the joined, or what we would now call the cybernetic or cyborg integration of human and technological agencies and devices in a functionalist process of production. For Briet, such production, guided by the goals of industrial modernity, was the culture of "our age." If, for Otlet, social totality finds itself reflected in a global bibliographic collection, for Briet social totality is subsumed, both in body and soul, within the driving forces of industrial science. The difference between Otlet and Briet here is significant, in so far as that what Otlet argued for was what Marx termed the formal subsumption of knowledge to the form of science, whereas what Briet argued for was the real (or total) subsumption of culture as a whole to “science.” Technical-technological integration and cyborg existences were part of this subsumption of culture to science, thus leaving documentation to appear as a “cultural technique” even as it proclaimed itself to be leading science “like the dog on the hunt—totally before [the scientific researcher], guided, guiding” (“Briet, 1954). This expansion of embodiment or subsumption, from the level of knowledge and documentary forms, per se, to culture demands a total appropriation of social syntax and the cultural habitus within the instrumentalism of science, and thus, parallels the jump from "information management" to "knowledge management." [6]

### Mid-Century Critiques of Knowledge Representation

We may identify at least two types of critiques in the first half of the twentieth century of documentation's belief that epistemic totality could be made present and embodied in documentary forms and systems. In what follows, we will discuss the works of representatives of these two traditions: Martin Heidegger (phenomenology) and Walter Benjamin (Marxism). [7] However brief must be our discussion here, both these movements and figures demand mention so as to show that there were largely forgotten or historically displaced counter-discourses in modernity to the representational and instrumentalist understanding of knowledge that Otlet and Briet's works offered, and to suggest that such “post-modern” critiques, such as Negri's (which we will mention later), have predecessors during the modern period.

#### Martin Heidegger

Martin Heidegger's version of phenomenology begins with the work of 19th century hermeneutics, stressing the contextual and perspectival nature of knowledge.

Heidegger's critique of technical science, information theory and cybernetics from the late 1930s through the 1960s focused upon a philosophy of knowledge wherein knowledge is understood as the presence, transmission, and representation of meaning within human and human-technical cognitive systems by means of dehistoricized "senders" and "receivers" and value-free transmission channels.[8] As far as I am aware, the extent of Heidegger's critique of information theory and cybernetics is almost totally unacknowledged, despite the volumes of critical writing on other aspects of his work. Beginning with his critique of technical science in his 1938 lecture, "The Age of the World Picture" up until his remarks on cybernetics in "The End of Philosophy and the Task of Thinking" (1964), Heidegger critiqued the types of epistemology and ontology at work in both Otlet's "world mind" and Briet's notion of global, "scientific" development.

Central to Heidegger's critique throughout his works is the primacy of time and site specificity in the construction of meaning, particularly as such take place in language. "Knowledge," for Heidegger, cannot be separated from language, and language cannot be separated from the speaker, who, him or herself, is embedded in historical nexuses and social syntaxes.

This basis for knowledge in language and existence leads to issues involving meaning and origin. If knowledge cannot be divorced from the meeting of heterogeneous horizons for understanding, and if it cannot be separated from site and time specificities it therefore cannot be said to be embodied in any singular mind or even group of minds. Also, knowledge cannot be said to be smoothly or correctly transmitted between minds, because the very transmission "apparatus" (language and other means for semiotic affects) is what produces knowledge and thus is not the mere material medium for its transmission. "Objective" knowledge in the sciences, for Heidegger, requires technologies and techniques for the stabilization of meaning (it is this approach that is aped in Warren Weaver's social and semantic exposition of Shannon's technical theory of information (Shannon and Weaver, 1949; see Day, 2000a)). For Heidegger, the possibility of such knowledge in the sciences, however, in no way structures its possibility in other forms of understanding, nor does it suggest that knowledge and communication in general must, or can be, objective. Indeed, Heidegger's commentary upon information theory and cybernetics points to the dangers of covering over the technical and methodological specificities of science and of generalizing the epistemology and methods of technical science to historical and social phenomenon.[9]

Heidegger's insistence on accounting for knowledge through a conception of language situated in social totality and historical emergence means that a social understanding of knowledge in the modernist sense of being "information"—that is, as historically and socially transcendent "facts" or presences that can be transmitted through minds and that can link minds in smooth networks—comes under critique in his work. Information, as Heidegger writes of the metaphorical understanding of knowledge in terms of technical systems, requires a technical framing—an informing of knowledge—that then erases its own presence in the mythos or ideology

of self-evident “facts.” Eventually, Heidegger writes, such a view informs the understanding of language itself, as “clear” communication.[10] Such a view of language, in turn, creates the view that all knowledge is informational and communicational, including historical knowledge, and thus, information theory shapes the historical agency (the historicity) of people. In this way, “informationalization” threatens the possibility that human freedom could be understood or articulated in any more radical manner than that of liberal subjects acting within a “common sense” of communicative reason.[11] For Heidegger, a metaphysics of information reduces history to a set of naturally occurring and repeatable forms that can be used within production. Language and historicity are thus reduced to the “freedom” to choose among acceptable forms for expression and action.

Heidegger's critique of knowledge as representation and instrumentalization introduces the political problem of the formalization and control of language in modernity, and his critique provides a counter-balance to Otlet and Briet's naturalization of such events in their texts. Contemporary theorists such as Jean-Luc Nancy (1991) and Giorgio Agamben (1993) have used Heidegger's critique as a basis for suggesting that communication and community are not based upon a stable or rational body of knowledge, actors, and language, but rather, that communication and community are composed of simultaneous misunderstandings and understandings in a non-reducible and unstable world of language and finitude; that is, as Nancy has termed it in contradistinction to instrumental and operative models of community, upon an “inoperative community” (Nancy, 1991).

Perhaps, however, with its central focus upon individual, human existence (Dasein), Heidegger's phenomenology is limited in its ability to speak of excess in terms that effectively counter a positivist politics of totality. It may oppose that totality in the name of an authentic sense of being (a “fundamental ontology”), but such a critique does not necessarily engage political tensions qua political. Marxist discourse, on the other hand, does contain the vocabulary for developing a political critique of positivist totality because it understands politics in terms of not only individual essence, but also in terms of group existence, and in terms of social power, appropriation, alienation, and antagonism. Capitalist appropriation, here, is more than just the appropriation of consciousness, but the appropriation of the generative capacity of language and communities within the accumulation and reproduction of wealth. Walter Benjamin's work of the 1930s surrounding his Arcades project (Benjamin, 1999) constitutes one of the most explicit Marxist critiques of its time regarding the appropriating power of information and communication technologies, but, at the same time, his work demonstrates a characteristic ambivalence by the political Left in regard to the revolutionary power of those same communication and information technologies that lead to the mass media. It would be useful to pause on Benjamin's work because it constitutes both a critique of documentation's understanding of the relation of culture and information systems and because its ambivalent understanding of this relation foreshadows later critiques, such as Antonio Negri's.



## Walter Benjamin

For Walter Benjamin, knowledge is bifurcated along lines of experience. "Experience" in Benjamin's work is expressed by the two German terms: *Erlebnis* and *Erfahrung* (Benjamin, 1968a). It is important to look at these terms because Benjamin's discussion of them outlines a theory of the rise and fall of the private and public spheres in modernity, an issue that, as we will later see (particularly in reference to Christian Marazzi's writings), becomes important in recent discussions of post-Fordism and Knowledge Management as a theory of total administration.

For Benjamin, "*Erlebnis*" signifies the ideological combination of bourgeois dreams with myths of production, a combination that distances the bourgeoisie from many of the shocks, contradictions, and class antagonism inherent in capitalist production. It is a form of experience mediated by a "public" reality that is characterized by an ideology of progress and by readily appearing consumer goods. By combining Freud's explanation of dreams as a means of reappropriating trauma and Marx's explanation of alienation in terms of commodity fetishism, Benjamin develops a theory of ideology as technical and semiotic reproduction (Benjamin, 1968a).

One example of such a modernist dream might be the belief that the total subsumption of knowledge to capitalist industrial production leads to progress and even to utopia. For Briet, this dream is the reality and promise of a culture of "science." (Today, we might call this dream, "the information age" or the information age's "global village.") Within terms of maintaining the state, this dream would then constitute a mythic element for further productions--both symbolic and technical. Lost within such dreams would be the details of exploitation, alienation, class antagonism, and the commoditization of language, thought, agency, etc. Also lost would be the critical tools and vocabulary that are necessary for gaining critical distance on such dreams (such as the very concept of "subsumption"), since it is the function of ideology to marginalize and subsume oppositional narratives and vocabularies. A wide range of discourses, technologies, and political philosophies would be historically marginalized and subsumed and forgotten within the establishment of this dream.

Another example of the production of modern dream narratives for Benjamin occurred in the event of journalistic reporting and publication, in so far as Benjamin understood journalism to act as a means for neutralizing the violence of modern culture while producing public information. As Benjamin wrote, "If it were the intention of the press to have the reader assimilate the information it supplies as part of his own experience, it would not achieve its purpose. But its intention is just the opposite, and it is achieved: to isolate what happens from the realm in which it could affect the experience of the reader" (Benjamin, 1968b, p. 158). This isolation of experience in terms of generality and an ideologically constituted public space

characterizes the modern dialectic of *Erlebnis* and *Erfahrung* (now understood as public and private experience, respectively).

For Benjamin, the shock of mass production upon traditional, local spheres of existence and knowledge is expressed in terms of a bifurcation of experience and knowledge into public and private realms. Within the public realm, ideological dreams in support of capitalist production define experience in terms of generality and reproduction. Consequently, the private or personal remainder to this “public” or “factual” experience is now expressed as *Erfahrung*, an excess to “objective” knowledge, constituting the unexpressed or unexpressible *Abfall* (trash or remainder) of history (Benjamin, 1968b; Benjamin, 1999). Benjamin's critique attempts to destroy the grounds for this division of experience and knowledge in capitalist modernity, while also recognizing the need to valorize the “private” experience which is denied public validity by the logic of capital production and value, a “private” experience largely resting in the relatively silent lives of the proletariat.

Benjamin's critique of information and communication in terms of ideological production has one other important element that we will see reappear in the late 1980s and 1990s, largely in Italian autonomist Marxist critiques of the relation of totality to technologically mediated knowledge production, namely an ambivalent understanding of the social and political potential of information and communication technologies. This element occurs, foremost, in Benjamin's 1935 essay, “The Work of Art in the Age of Mechanical Reproduction” (“*Das Kunstwerk im Zeitalter seiner technischen Reproduzierbarkeit*”) (Benjamin, 1968b).

In this essay, Benjamin describes the complex class antagonisms that are expressed through newer mass media technologies, such as for Benjamin in the 1920s and 1930s, cinematic film. For Benjamin, these newer technologies are double edged. On the one hand, they more than ever subsume knowledge and experience in the “mass” manner described above in the case of journalism. On the other hand, as newer technologies of perception, communication, and experience, they turn the violence of reproduction back upon ideology, pitting a newly technologized rhythm of experience against those already subsumed by ideology.

In this latter manner, new technology turns against representation by means of a rapid and broad increase in the mode of technical reproduction. The absorption and inversion of violence that formed the political relation between moving pictures and the realism or “aura” of photography had previously occurred in the revolutionary relation that photographs had to the “aura” of realism in painting (Benjamin, 1968b). Like the psyche's use of traumatic dreams to absorb real life traumas, new technological devices reproduce for the viewer's apperception the violence of daily life, but now on a different, surreal scale. When Benjamin refers to this ability of appropriated technical reproduction to both reproduce and absorb via displacement and condensation[12] the cultural violence fostered by earlier technical reproduction (for example, in his discussion in note 19 of the “The Work of Art in

the Age of Mechanical Reproduction"[13]), he does so with a sense of difference and even optimism, seeing a momentary schism between new technology and ideology that Heidegger did not. And it is in this schism or chasm, as a technically enhanced deviation of ideologically encoded normative perception, which allows "private" knowledge and experience (as *Erfahrung*) to express itself and become public. In Benjamin's view, new information and communication technologies open history and human possibility by being poised against subsumption before they themselves are subsumed as tools of ideology. In this manner, Benjamin's work looks forward to the work of Autonomist Marxists, such as Negri, who read possibilities for class reconstitution within the very mechanisms of capitalism's technologically mediated economic and social restructuring (see Negri, 2000; Hardt and Negri, 2000; Dyer-Witheford, 1999).[14]

Of course, there are many other viewpoints on the relation between knowledge and totality that we could engage here. But it wasn't until the late 1970s through the 1990s that the major technological advances in information and communication technologies once again revolutionized industrial production and social totality in a manner similar to what happened in the 1930s through the 1950s, and it is no coincidence that it is during this recent period of industrial and social restructuring that one begins to see the emergence of Knowledge Management. I would like, therefore, to turn to this recent period and examine how Autonomous Marxist influenced post-Fordist theorists engaged the relation between knowledge and totality during this period. Their views are not often accounted for in the United States, but they provide insight into the limitations and possibilities for human existence in the midst of attempts to "mine" and "capture" knowledge through technological systems and instrumentally oriented organizational and social means.

### III. Post-Fordism

I would like to propose that knowledge management in the contemporary period is best understood as a product of a social condition which some social theorists through the 1980s and 1990s have termed, "post-Fordism."

What is "post-Fordism"? In order to understand this term, it is best to understand some characterizations that are traditionally made about "Fordism." Fordism is generally understood as not only the productive process of assembly line production, but also as the social arrangement that this mode of production, when adopted as the standard for production, imposes upon labor as a social force. As Christian Marazzi points out (1997), Fordism was the culmination of capitalism's replacement of artisan and skilled labor with rigid machine production and the semi-skilled labor of the mass worker. Socially, the importance of this was that the variable capital of the worker was replaced by the fixed capital of machines, thus undercutting the power of labor to control the forces and the pace of production. According to Marazzi (1996, 1997), in exchange for this surrender of skilled autonomy, the wage in Keynesian economics was spread through society in the form

of the welfare state, which attempted to assure a balance between consumption and production so as to stave off economic downturns. The Fordist assembly line was, in a way, an exemplary social form for the welfare state in so far as it distributed risk through collective production for the sake both of production and consumption, capitalists and workers. The key to distributed risk, however, was a social pact, organized and governed by the state, company, and union.

The crisis of Fordism and the movement toward a post-Fordist or "flexible" economy and management systems is accounted for variously. Some theorists, such as Agostinelli (1997) account for it in terms of increased global competition and a scarcity of not only natural resources, but also of labor, beginning in the 1970s. Others, such as Negri (1988) see it, at least in Italy, as a reaction to, and a duplication of the desires and demands of younger workers during the 1970s to be free of the physical and mental constraints of the factory and of the compromising demands of the large labor unions. Others, such as Marazzi (1997), see the crisis as rooted both in economic determinates, such as global competition and scarcity in material resources and labor, and as capitalism's reaction to the demands of unionized and autonomous labor.

No matter the central cause, no matter the political orientation of the theorists, and no matter if we call this shift "post-Fordism," the "new economy" or the "knowledge economy," this shift in productive means is generally understood to be a social phenomenon wherein the issue of production is central. As the Italian Marxist theorist Mario Tronti (1973) pointed out, the resources and management conflicts of factory production have been extended and further socialized, leading to what Negri (1988) has called the "social worker" (in contrast to Fordism's "mass worker"), a phenomenon that points to the importance of what Tronti (1973) called "social capital" in the new era of capital production. The "social worker" and "social capital" refer to the central value that social skills and language are seen to have within the post-Fordist economy. In post-Fordism, production is no longer essentially located in the factory and in the disciplining of the factory worker, but it is now located throughout the social nexus itself and in processes of socialization. Here, perhaps, we move from a "society of discipline," to a "society of control" (Deleuze, 1995).

Following Marazzi (1997), we may now point to several characteristics of the post-Fordist work environment that lead to the problem of managing social capital. First, from an economic perspective, post-Fordism involves the inversion of the Fordist production-consumption emphasis. Whereas for Henry Ford one could choose any color of Ford, just so it was black, the environment of post-Fordist production is consumer driven, attempting to extract capital value from a tight consumer market. Knowledge of consumers, here, is crucial for coordinating just-in-time production and zero-stock with successful sales. Knowledge is understood as a resource that needs to be mined both from consumers and from workers and their relationships, and it is based not just on data ("information"), but on taste and on the subtleties of linguistic expression. Successful sales are no longer a question of

utilizing market trends, but of anticipating and shaping markets. The coordination of consumption and production in terms of language and taste is crucial. Second, in order to serve this model of demand-and-supply, businesses have moved to decentralized or "flexible" work units, relying upon information and communication technologies to coordinate these relatively "autonomous" work units for the goals of maximum profits. Third, and not to be ignored, large corporations have supplemented profits through investments and through their stock offerings, activities that ultimately occur in the realm of social speculation. In each of these examples, businesses attempt to increase their profits through linguistic and social means. Any history that attempts to articulate a transition from information management to knowledge management must take into account this expansion of production at the level of language, social capital, and the social factory.

The expansion of production into the homes of consumers and into the social and linguistic resources of the workers means that real subsumption--the introduction of the logic of the wage and of commodity relations into the formerly "private" spheres of life and experience--has occurred. Knowledge Management's need to "mine" previously unrepresented or unrepresentable resources may be seen as symptomatic of the need for capital to reach beyond the traditional boundaries of "work" and "marketplace" toward a totality of social skills, resources, and needs.

This expansion of the reach of capital into the previously "private" sphere of bourgeois life, particularly in regard to production, has led Marxist-influenced theorists, such as Negri and Hardt (1994, 2000) and Lazzarato and Negri (1991), to stress the problem of general intellect<sup>[15]</sup> in production. Hardt (1999) and Negri (1999) have proposed that post-Fordist labor places a high value upon affective social and linguistic relations that are used to negotiate social spaces in telecommunicational, service, and intellect intensive industries. Hardt (1999), particularly, has advocated the use of the term "affective labor" to designate this prevalent mode of production in post-Fordism. Further, the emergence of high levels of women as wage labor during the period of post-Fordism, together with a recognition that women's labor in the home provides much of the unpaid labor for reproducing, training, and supporting law abiding workers for capital (Tronti, 1973; Marazzi, 1997; Dyer-Witheford, 1999)--in other words, that feminine reproduction is increasingly synonymous with capital production (Dalla Costa and James, 1972; Fortunati, 1995; Dalla Costa and Dalla Costa 1999; and Caffentzis, 1999)--have led to an articulation of the problem of measuring, valuing, and rewarding an affectively based "resource" of production by traditional quantitative methods (Marazzi, 1997). If productive value is now located in traditionally non-representational or non-"informational" sources, that is, in knowledge located in largely heuristic and qualitative social and linguistic syntaxes, how exactly are we to mine, represent, and measure such "invisible labor" which is not innately quantitative?

As Bowker and Leigh Star in the United States (1999), and Kergoat in France (1982; cited in Hardt and Negri, 1994) have suggested, in certain traditionally female-intensive professions, such as nursing, this issue has reached a critical point in

terms of the professionalization of the field. Others though, such as Thompson, Warhurst, and Callaghan (2000), have suggested that such a category as "affective labor" may be too broad, however, and that service work and knowledge work, as well as different varieties of labor that might be classified into such categories, cannot be lumped together since they not only involve different skill sets, but also that such an over-arching approach blurs the class boundaries and the uneven development of capital in the "new economy."

While Knowledge Management has viewed the problem of turning "tacit knowledge" into "explicit knowledge" as a solvable problem through organizational and technical means, Lazzarato and Negri (1991) tend to view the "surplus" value of "tacit knowledge" as a non-recoupable value that has the potential for a revolutionary challenge to capitalist production. For Lazzarato and Negri, general intellect, often unified by new information and communication technologies as well as by the relatively autonomous work units of post-Fordist flexible management, can lead to arrangements of power that were impossible in the disciplinary arena of the factory. In what they call the "immaterial labor" of post-Fordism, capital has returned the power for production to relatively autonomous workers that are aided, but not controlled, by information and communication technologies. As Dyer-Witheford points out (1999), for Negri, capital today encounters its deepest threat in its dependency upon a technology and an organizational arrangement that locates production in relatively autonomous work units.

Others, such as Marazzi (1996), however, temper this claim by pointing to the larger organization of society in late modernity according to a "language of total administration" ("linguaggio dell'amministrazione totale," 21). As Marazzi (1996, 1997) suggests, in the transition from the welfare to the workfare state the state's role is to assure adherence to productive norms through education aimed at training, through maintaining an ideology that stresses the centrality of capitalist-defined productive work in society, and if necessary, by excluding "non-productive" elements of society vis-a-vis welfare cuts, cuts in state-sponsored child support, increasingly punitive prison systems, and cuts in educational enterprises that are not "privately" supported (either totally or in terms of "private-public" partnerships) and that do not have economically productive aims (see also, De Giorgi, 2000). The state's role, here, is not only explicit social coercion in support of the reproduction and accumulation of wealth, but foundational to this, the more subtle shaping of the boundaries and functions of language so as to stress language's communicative functions for the purpose of reinforcing the value of "rational" productive tasks. Total administration is not only a product of explicit force, but it is first and foremost a result of controls over the forms and functions of language. Ideology means that the first and last things that are taken away are that of language. The instrumentalization of language, even in the formerly private sphere of affective relations, serves to assure that affective relations in post-Fordist language never stray from ideologically normative conditions, namely, effective capital production. As I have pointed out in an earlier work (Day, 2000a), this instrumentalization of language was innate in the social expansion of information

theory by the rhetoric of cybernetics. "Total administration" may be understood as information theory and cybernetics extended to the private sphere in the latter's subsumption within total capital production. In this manner, post-Fordism may be viewed as the expansion of Fordism across social totality by other means--namely, those of language--, though without the social guarantees that accompanied Fordism in Keynesian economics.

## Conclusion

Whether one takes an optimistic or pessimistic view, as well as a politically "Left," "Right," or even a "Centrist" view on the relation of information and communication technology to human agency and community, one thing is certain. When the issue of total production is at stake, such discourses have a prescriptive function, as well as a descriptive one. While the polemics of revolutionary possibilities in Marxist social analyses are often noted, ideological constraints often work in the opposite direction in the rhetoric of capitalist management discourses, restricting knowledge and practice to the conceptual and "practical" dimensions of quantitative production and wage labor. So, as Yakhlef and Salzer Mörling (2000) note, "The creation of the category of intellectual capital draws knowledge closer to the market, making its value subject to the laws of the market, of competition, etc....Furthermore, the invention of this category implies not only the invention of new metrication instruments, but also a disciplining and disciplined category of managers and employees, be it 'manager of intellectual capital,' 'knowledge executive' or 'knowledge worker'" (p. 34).

This isn't to suggest that such rhetorical and discursive strategies are socially or politically empty, however. For, I would like to suggest—and in fact, stress--the contrary: it is often on the basis of the construction of theoretical or conceptual categories that practical tools and organizational implementations are deployed, and, as the quote above suggests, it is through such categories that power is formed, agencies assigned and regulated, and communities shaped, now and into the future. The categories of "the virtual organization," "Knowledge Management," and earlier, Briet's "Science" or Otlet and Wells' "world-mind" all mark definite and determinate categories for the establishment and development of personal and social agency. These terms can neither be simply reduced to the category of "rhetoric," nor can such a category in the midst of these terms be divorced from social analysis. The Foucaultian category of "discursive regime" needs to be kept in mind here, and particularly the power that discursive regimes have in societies where language plays a leading role in production and social control.

The attempt to understand human language, and human and natural affect in general, as a resource for capital production marks one use of language, a use that is central to the business of modern management and, lately, Knowledge Management, and their role in wage labor and capital appropriation, accumulation, and exploitation. It is unclear, however, despite popular polemics, if Knowledge

Management or any other such management discourse is up to the task of making fully “explicit” “tacit” language and social affects. Language functions in other ways than representation; literature depends on a linguistic excess to representation, and the history of language provides empirical evidence that meaning develops out of the murkiness of social syntax, lying in a non-measurable totality of language and human relations. Autonomous Marxists, such as Negri, argue that the totality of human knowledge cannot be understood as a resource for production because its totality constitutes a source of power that itself exceeds capitalist production. Yet, they also suggest that some sort of self-organization of this unrepresentable excess is not only possible, but that this always already constitutes “pre-capitalist” modes of productive and reproductive life, and thus, forms the basis for an ontologically constitutive power that is greater than the modern state (the latter which is understood as a regulative mechanism in capitalism’s capture and control of ontologically constitutive power) (Hardt and Negri, 2000; Negri, 2000).

Though it is problematic if what has traditionally been thought of as capital’s excess can now be fully harnessed by Knowledge Management or any other management technique, it is interesting to consider if this social power that was always behind capital’s production is now more self-articulate or self-empowered due to the shift from a manufacturing to a knowledge-based economy and due to the mass presence of non-broadcast, global information and communication technologies. For various reasons it is difficult to definitively answer this question, though global neo-liberal policies and Knowledge Management might, from a Left perspective, be suspect as attempts to reframe and redefine this potential within the desires, techniques, and technologies of capital.

What I have suggested in this paper is that a discourse that relates information and communication technologies to totality in the form of knowledge management has been present throughout the twentieth century and that it has not only organizational, but also, social and political roots and implications. Though totality itself may not be fully representable, a discourse and rhetoric that aims toward this goal has political and regulating functions throughout society. The notion of “totality,” whether it be explicit or not in the rhetoric of information and communication today, has a political function and it shapes persons, societies, language, and even the technologies we invent as means to being and community. How we understand, and thus, how we approach totality is not only a problem of method, but it is both a social force and a symptom of cultural and social relations in the present and toward the future. Knowledge Management is a crucial extension of a modernist approach toward controlling totality, and we need to look at it within its theoretical and historical context in order to approach it critically, before we either become enamored advocates of it or we dismiss it as mere fashion or “rhetoric” and condemn it to the dust bin of a history that will, inevitably, rise again.



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[2] In his book, *Cyber-Marx: Cycles and Circuits of Struggle in High-Technology Capitalism* (Dyer-Witheford, 1999), Nick Dyer-Witheford emphasizes the differences between the post-Fordism of the French Regulation School and the understanding of post-Fordism developed by those writers who have been associated with Italian Autonomous Marxism (foremost, Antonio Negri). In this paper I engage a reading of post-Fordism that is informed by Italian Autonomous Marxism, but I only suggest and do not fully develop the notion of autonomous production that occurs in the works of such writers as Negri. Though Dyer-Witheford's emphasis in his book helps to explain Negri's writings and their differences with Regulation School post-Fordism, in my view, such writers as Christian Marazzi (Marazzi, 1996; Marazzi, 1997) blur the boundaries for establishing a clear division between such categories as "post-Fordism" and "Italian Autonomous Marxism." For the reading offered in this paper, "post-Fordism" should be understood not only as an economic category, but as social and political categories as well.

[3] In this paper, lower case "knowledge management" refers to a practice, tradition, and ideology of managing knowledge in discourses of management, economics, and politics in modernity, whereas capitalized "Knowledge Management" refers to the recent trend of attempting to practice knowledge management in terms of the management of "implicit" knowledge or of "social capital." Since the attempt of this paper is to situate the latter (e.g., "Knowledge Management") within the historical context of the former (e.g., "knowledge management"), a semantic overlap between these terms must be assumed. Though it is not the subject of this paper, such research must also be situated within the study of the ideology of science in modernity. This problem, of course, is explicit in the tradition of "scientific management" to which Knowledge Management both belongs and extends.

[4] In their article "Knowledge Management: Semantic Drift or Conceptual Shift," Elisabeth Davenport and Blaise Cronin (Davenport and Cronin, 2000) have usefully explored the semantic shift of the term "Knowledge Management" in the areas of Library and Information Science and in Management. Davenport and Cronin suggest that beside understandings of Knowledge Management as information processing and process engineering, Knowledge Management may fruitfully be understood in terms of the "interplay" of tacit and explicit knowledge, "human capital" and organizational "structural capital." As will become clear in this paper, reading Knowledge Management in terms of post-Fordism stresses this last sense of the term, though the literature that I will explore often views the very notion of "managing" "human capital" as deeply problematic (Marazzi 1996, 1997), at least in terms of the management traditions of modernity. Further, in all the theorists that I identify in this paper as belonging to "critical modernist" and Marxist traditions the very binary distinction of "tacit" and "explicit" knowledge would be seen as a false dialectic, in so far as the former term is understood in Knowledge Management as a potentially nascent form of the latter, produced under conditions of managerial power and representational systems and technologies. In these theorists' writings, the critique of "tacit" knowledge is part of a critique of representation (and of

information qua representable knowledge), a critique which underlies the phenomenological and critical theory traditions. To speak in Knowledge Management of “tacit” knowledge as a potentially “explicit” or representational knowledge is to view “tacit” knowledge as a nascent managerial entity—in this case, an ideal or mentalistic entity that can be potentially embodied in “material” (i.e., representational) systems (see Frohmann for a Foucaultian “discursive analysis” critique of this idealist tradition in information science (Frohmann, 2001); see Harré for a concise critique of this tradition in cognitive psychology and artificial intelligence from the aspect of discursive psychology (Harré, undated)). In my view, the better approach than accepting a binary relation of “tacit” and “explicit” that is a priori inscribed within terms of the “explicit” (i.e., in terms of representation) would be to examine the historical traditions, texts, and social rules and forces by which “tacit” knowledge becomes identifiable within terms of the management of knowledge, and to examine the forgotten or rarely noticed resistances to these acts of production. This paper should be viewed as taking part in such a project, which in turn, belongs to a larger project of tracing (and deconstructing) the historical, social, and discursive genealogies and events of “information,” as this term signifies an exemplary mode of representation in mid and late modernity (a general project that I would name, “critical information theory”).

[5] I use the term "totality" not only in terms of a productive totality, but also in light of commonly accepted discourses regarding the "global" nature of neo-liberal economics, as well as the related "global" nature of the "information age" and the "global village." From the viewpoint of Marxist oriented critical theory, however, "totality" also symbolizes that which cannot be recuperated into any representable whole: a negative horizon for totality. This is the nature of totality, for example, in Theodor Adorno's book, *Negative Dialectics*, and arguably in Antonio Negri's work (Negri, 2000), as well-. As will become apparent in this article, conceiving totality as representable and manageable, and, conceiving totality as unrepresentable and ultimately, as unmanageable from any transcendental viewpoint, form two divergent horizons for thinking about the problems of the origins and politics of knowledge and the relation of knowledge to language and community. Interestingly enough however, as I will later suggest in this paper, discourses that argue each form of totality often have shared empirical starting points in considerations upon the social meaning of information and communication technologies, such as take place around the issue of post-Fordism. Given the abstract nature of totality in such terms as “tacit knowledge,” “social knowledge,” or “general intellect” (or, “the world mind”), as well as the abstractness of the word, “global” in popular discourses today and throughout modernity, I will refrain from predicating the notion of totality and its cognates further, and I will suggest in the conclusion that the abstraction of “totality” has, in fact, very definite roles in knowledge management discourses that help define being, community, and production in certain directions in modernity, particularly while projecting modernity’s future.

[6] Briet’s understanding of multilingualism as a hindrance in the path of global standardization and scientific progress may be taken as evidence of a desire for total

subsumption at a global level in her work. I have developed this analysis more fully in a previous article (Day, 2000b). It is important to note here that it is not enough to read Briet's second wave documentalism only in terms of a change from an idealistic, positivist understanding of science to a sociological or materialist reading of science. Otlet's understanding of knowledge as being embodied in bibliographical forms doesn't disappear, but instead, it becomes expressed through a particular reading of machine dynamics and tightly organized regimes of practice (i.e., "technique"). Otlet's positivism remains, but now it is embodied in a rhetorical understanding of machines and practices in terms of their being "dynamic," "precise," etc.. Once we have described the sociology of science and culture in Briet's texts, her teleology and vanguardism demand that we account for their metonymical relation to one another, and this thus produces the necessity of understanding the ideological forces that give form to her rhetorical compositions. In the end, machines and practice are not what make up Briet's conception of "science," but instead, it is the rhetorical characterizations of these machines and practice that then lead her to narratives of historical contingency and professional vanguardism. It is important to differentiate here between the tools and practices of science and a sociological narrative that organizes and attributes value to those tools and practices in its recounting of them, the latter which, itself is a form of what Latour has somewhat vaguely termed, "centres de calcul." Sociological narratives of production do not displace, but in fact, demand, a further symbolic analysis. (I will add that I often find this point to be missed in some recent studies of science and technology, though I do not, however, find it lacking in Foucaultian analyses of knowledge. Compare, however, Frohmann, 2001, which seems to argue for reading these two forms of analysis together.)

[7] More extensive discussions of Heidegger's critique of cybernetics and of Benjamin's work, as well as discussions of Otlet and Briet's works, are given in my forthcoming book, *The Modern Invention of Information: Discourse, History, and Power* (Southern Illinois University Press, 2001).

[8] In an earlier article I have discussed Weaver and Wiener's social extension of information theory by means of metaphor (Day, 2000a).

[9] For example, in treating human existence as an object, and consequently, as a material resource within industrialized production: "Only to the extent that man for his part is already challenged to exploit the energies of nature can this ordering revealing happen... The current talk about human resources, about the supply of patients to a clinic [Die umlaufende Rede vom Menschenmaterial, vom Krankenmaterial einer Klinik], give evidence of this." (Heidegger, 1977c, p.18).

[10] "Within Framing, speaking turns into information [Das so gestellte Sprechen wird zur Information]. It informs itself about itself in order to safeguard its own procedures by information theories. Framing--the nature of modern technology holding sway in all directions--commandeers for its purposes a formalized language, the kind of communication which "informs" man uniformly, that is, gives him the

form in which he is fitted into the technological-calculative universe and gradually abandons 'natural language'.... Information theory conceives of the natural aspect of language as a lack of formalization [Die Informationstheorie begreift das Natürliche als den Mangel an Formalisierung].” (Heidegger, 1971, p. 132)

[11] This threat is the theme of my forthcoming book, earlier cited.

[12] Displacement and condensation are the main techniques of dreams according to Freud. These techniques were also important in Dadaist art and avant-garde film in the first third of the twentieth century (which were major influences in Benjamin's work); hence, Benjamin's intersecting readings of dream technique, aesthetic technique, and social critique.

[13] “The film is the art form that is in keeping with the increased threat to his life which modern man has to face. Man's need to expose himself to shock effects is his adjustment to the dangers threatening him. The film corresponds to profound changes in the apperceptive apparatus—changes that are experienced on an individual scale by the man in the street in big-city traffic, on a historical scale by every present-day citizen.” (Benjamin, 1968b, p.250).

[14] One difference, however, between Benjamin's reading and Negri's reading of new information and communication technologies seems to lie in the types of technologies they are analyzing. Benjamin's reading of cinema is closely allied to the Dadaist's understanding of technological objects as “objective” mechanical devices that can introduce aleatory effects, whereas Negri and other kindred autonomists read the revolutionary possibilities of digital technologies in terms of the expressive possibilities that are inherent in communicational mediums. In Benjamin's and Negri's writings (as in Otlet's and Briet's), information and communication technologies play a central role--both technologically and symbolically—in constituting social space and history.

[15] Marx's understanding of “general intellect” in his Grundrisse envisions a moment in the history of capitalism when production will ultimately lie more in the collective knowledge and social skills of the workers than in the fixed capital of machines. For more on “general intellect,” see Dyer-Witheford, 1999.