POSTMODERN MANAGEMENT AND INFORMATION TECHNOLOGY IN THE MODERN INDUSTRIAL CORPORATION

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ABSTRACT

This paper examines the concept of organizational emergence with respect to postmodern business organizations. We conclude that although there may be postmodern business enterprises in the United States, by and large they subcontract, not abolish, their modern work place relations. Information technology (IT) has been at the core of this process. Sophisticated information technologies have permitted the outsourcing of many business functions, such as production, marketing and service, once considered central to a firm’s activities. Subcontracting allows senior managers to concentrate on standardizing the work of the design and technical employees who work for the new “virtual” enterprises.

1. INTRODUCTION

The character and form of organizational change have been favorite topics for management theorists (Drucker 1979; March 1971; Ouchi 1980; Perrow 1988). Recently, organizational theorists have paid increasing attention to the nature of organizational change characteristic of “postmodern” economies (Toffler 1985). Of particular interest have been the effects on business enterprises of the wholesale adoption of new and rapidly evolving information technologies (Toffler 1990; Dean, Yoon and Susman 1992; Bergquist 1993; Clegg 1990, 1992; Cooper and Burrell 1988). This paper examines a class of evolving organizational forms generally called “postmodern.” We argue that 1) this development is an example of a specific kind of organizational emergence and 2) information technology (IT) is used to adapt conventional command-and-control management systems in thoroughly “modern,” that is, Taylorist, ways.

The paper is structured as follows. First we describe the major components of organizational emergence theory. Second, we examine how IT has facilitated emergent organizational forms. Finally, we consider how the class of emergent organizations we label “postmodern” affects different kinds of workers differently, particularly with respect to the organization of work practices.
2. EMERGENCE THEORY AND ORGANIZATIONAL EMERGENCE

Emergence theory is related to the social construction of reality (Berger and Luckmann 1966), but extends the notion by rejecting *a priori* structures altogether. The concept of *emergent systems* holds that human systems do not follow fixed patterns. Instead, human systems exhibit the potential for change and are always in the process of change. They are products of constant social negotiation and consensus building. They may exhibit temporal regularities of behavior, but are never fixed. Structures and organizations are always in process; they are never fully formed.

By organizational emergence we refer to a theory of systems which does not assume that stable structures underpin organizations. Emergence theory rejects the assumption of preexisting organizational forms and structures, that is, form and structures which may be discovered, described, and provide the “place” in which human events occur and where relationships are ordered. Instead, structures are reflections of the observer’s mental models which are imposed upon the events observed, as in the process of “structuration” (Cohen 1989; Giddens 1984) or as “becoming” in the Heideggerian sense.

It can be argued that structures do exist but that they are simply not visible from the observer’s point of view: they exist as “meta-structures” governing organizational behaviors. Meta-structures create constraints on organizational behaviors and thus limit the course of organizational choices, ultimately controlling the organization and its members. In another words, the meta-structure — sometimes also called a meta-narrative — is a set of rules or norms of social or organizational behavior. Emergence theory views meta-structures as “local narratives” that constantly move across changing boundaries in a process of ongoing definition, negotiation and reinterpretation.

Emergence theory is therefore more than simply a theory of managed or manageable “organizational change.” Organizational emergence does not imply a specific direction or degree of development, particularly one that can be fully anticipated and controlled by managers or technologists or other experts. It implies neither progress nor an inevitable devolution and movement toward decentralization or, for that matter, anarchy. Organizational emergence is not analogous to the biological notion of evolution, that is, non-reflective selection and variation. Instead, organizational emergence is a product of human intention and (largely linguistic) social interaction within a variety of social settings. While these actions do not follow fixed causal patterns, they are not wholly random: they can be influenced, if not controlled, by interaction and reflection.

3. ORGANIZATIONAL EMERGENCE AND POSTMODERN ORGANIZATIONS IN THE UNITED STATES

An important part of the discussion of organizational emergence has taken the form of defining and analyzing the *postmodern organization*. The term postmodern comes primarily from literary criticism, architectural history and cultural studies to distinguish a world view from something called, appropriately enough, modernism. Modernism assumes the primary role of human rationality, instrumental reason and empiricism. It presumes the existence of universal truths,

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1One of the authors (Truex) has been actively engaged in the project of defining “emergence theory” and applying it to the study of organizational systems and change (cf. Truex [1993] and Travis and Truex [1993] for some recent examples). While emergence theory shares many of the concerns of what we call here post-modern theories of organizations, they are not the same in several crucial respects, e.g., assumptions about the role and utility of local and meta-narratives. Given the focus of the present paper, we can only note but not elaborate the differences.
waiting only to be discovered, tested, measured and, in the words of one of modernism’s dominant theorists, “falsified” (Popper 1959).

Most of what we take as “science” and the scientific method is therefore “modern.” So, too, are the forms of social organization that are based on principles of instrumental reason, empirical testing and the quantification of measurable outcomes. “Rational” bureaucracies, the capitalist firm, free public schools and weight loss clinics are all examples of “modern” organizations. Each is organized according to the principle that behavior can be specified and measured, rules can determine behavior and the outcomes predicted and changed “at will.”

By contrast, postmodernism rejects the centrality of instrumental rationality. It accepts multiple types of rationality and sees reality — more precisely, multiple realities — as socially constructed. It rejects the notion that any issue can be studied with one universal method of scientific inquiry, that is, with a single, transcendental meta-narrative. Postmodernism insists that social, political, economic and other environmental circumstances form a context in which to analyze and make sense of socially-derived events, the local narratives which challenge “global, all-encompassing world views....The postmodern goal is not to formulate an alternative set of (universal) assumptions but to register the impossibility of establishing any such underpinning for knowledge” (Roseneau 1992). Postmodern organizational theorists such as Lyotard (1987) and Roseneau see social organizations as open systems which are self-organizing and are in a constant state of defining, redefining and “sense-making,” that is, understanding themselves and the world at large. Hierarchy and organizational stability, previously taken as givens, are now replaced by a “suspicion (of) rational organization...a withdrawal of confidence from specialists and experts ....(and) the authority of hierarchical bureaucratic decision-making structures that function in carefully defined, non-overlapping spheres” (Lyotard 1987).

In sum, in place of behavioral psychology, Newtonian mechanics, Scientific Management, and the Scholastic Aptitude Tests, postmodernism gives us deconstructionism, post-structuralism, cultural studies, a deep respect for tacit knowledge — and the theory of the postmodern enterprise.

4. THE THEORY OF THE POSTMODERN BUSINESS ENTERPRISE

When we move from general theories of the emergent, postmodern organization to theories of the emergent, postmodern business enterprise, we also find a vigorous rejection, both analytically and prescriptively, of the basic structures of the modern business organizational forms. The postmodern business organization, we learn from futurists and management writers like Toffler (1985, 1990) and Peters and Waterman (1990), is not based on stable markets, predictable competition (that is to say, oligopoly) and stabilizing government regulation. It has no need of time-and-motion management and adversarial work place social relations. Thus,

old economic theories, models and measurement methods, designed for the “smoke stack era,” are increasingly obsolete. Even our notions of efficiency and productivity. Throughout the smokestack era, the mass production of millions of identical products was symbolic of “modern times.” (Toffler 1985)

In contrast, the postmodern, emergent corporation does not adhere to the traditional binary organizational forms, e.g., market-based (you have products and customers or you are out of business) or bureaucratic/hierarchically structured (you have precisely defined positions and roles with clear responsibilities and rewards or you have chaos). The postmodern organization eliminates rigid boundaries. It is in a constant state of formation, reformulation and evolution. It is fluid, flexible, adaptive, open and attuned to its surroundings, which are in turn always changing — in short, it is always in a process of emergence.
In the business literature — and particularly in the pop-management literature — this new organizational form is called by many names: the dissipative organization, the imaginary organization, the adaptive organization, the learning organization, the flexfirm, the agile enterprise, the pulsating organization, the network organization and, inevitably, the virtual organization. It learns and accepts change as the norm. It cooperates as well as competes and creates as well as responds to markets.

In practice, the postmodern business enterprise designs and sells products instead of making them. It “coordinates” relations with vendors and subcontractors and customers rather than building vertically integrated businesses in established markets. It hires and advances people on the basis of their ability to adapt rather than on their place in “old boy” networks. Even its legal form is amorphous, defined largely by tax rules, regulatory statutes and trade treaties.

In Table 1, we summarize some of the key concepts in recent management and organizational theories of the postmodern enterprise.

5. THE POSTMODERN ENTERPRISE AND IT

In the perspective reproduced here, postmodern organizations are heavily dependent on extensive and sophisticated information technologies. Postmodern corporations depend on

Table 1. Features of Modern Versus Postmodern Organizations
the creation, maintenance and transfer of individual and organizational knowledge. Because postmodern organizations seek to decentralize and demand innovation, they create custom-made rather than standardized decision-making systems. They are governed less by rules and complex contractual relationships than by trust, forbearance and continuous learning (Huber 1991). The employees of the postmodern enterprise are, appropriately enough, often called “knowledge workers” and “team members” rather than simply workers.

Ironically, most theories of postmodern organizations thus assume the availability of cheap, reliable and tightly managed information technologies: the effectiveness of “local narratives” depends on the meta-structures of universal communications. Hedberg’s (1991) description of “imaginary organizations” is typical: Imaginary organizations are “virtual” because they are presented as a reality to the user, customer or member. In doing so, the use of cheap, universal communications systems is central. The virtual organization renders services as if it were in a traditional physical setting (such as a bank, brokerage house or retail outlet) or via traditional media (e.g., paper or voice negotiation). In fact the marketplace may be wholly electronic: the product may be made by other organizations, brokered, and serviced by still others. Organizational membership may include the customer as a client and alternatively as a co-producer of other products, all bound together in transactions of limited duration.

The services or products offered by the postmodern firm thus are associated with sharing of information or knowledge rather than raw materials, goods or tangible assets. “Strategic partnering” allows fast access to technology and research and development via temporary alliances, that is, the ability to buy complementary skills anywhere in the world. Virtual organizations continually create, bundle and unbundle various services and products — and people. Work is no longer associated with predictable “careers” but with “portfolios of skills” which, like the virtual firm itself, constantly cross boundaries, adapt and move from one temporary activity to another. Unions are not welcome, nor does the virtual enterprise offer an obvious “place” to organize workers who interact via telecommunications channels rather than face to face.

In short, emergent, postmodern business firms represent a fundamental challenge not just to traditional notions of the market, but to traditional divisions of labor, command-and-control systems and the very nature of employment relations. They abandon both analytically and prescriptively the essential assumptions of Weberian sociology and neoclassical economics, Marxism, modern theories of organizational behavior and Scientific Management — probably one of the few times all of have been so bracketed and collectively dismissed.

6. THE APPEARANCE OF THE POSTMODERN

If there is a theory of the postmodern business enterprise, can we say there is, in fact, a postmodern corporation form which validates and puts these theories into practice? We think the answer is no. Instead of the transformation of U.S. firms into constantly evolving, boundaryless organizations of the sort envisioned by postmodern theory, we are witnessing a two-pronged effort to reorder work place relations in thoroughly modern ways. The first prong involves shifting traditional production operations through a process of subcontracting. “Modern” forms of work organization are not abolished; they are, however, made progressively invisible (and cheaper) when performed in Indonesia or in Mexican maquiladoras rather than in Syracuse or Los Angeles or Flint. While there is nothing new or innovative about this trend, the sheer scope of the recent transfer of unskilled and semiskilled jobs from the United States has spawned a whole new management vocabulary (“downsizing,” “rightsizing,” “lean and mean”) and infused the recent national debate about the North American Free Trade Agreement. Traditional producers, in short, still operate in traditional ways, if at longer distances and with shorter lead times.

The second prong, thoroughly Taylorist, is to wring “slack time” out of the labor of the workers who remain in the newly lean and mean firms. Foreign competitors have forced U.S. enterprises
to undertake major and often drastic steps in order to compete in global markets. As part of the process of restructuring, U.S. management practitioners have joined academics in questioning the effectiveness of traditional command and control and work place relationships (cf. Clegg 1990, 1992; Cooper and Burrell 1988; Baskerville, Travis and Truex 1992; Toffler 1985, 1990; Peters and Waterman 1990). Much of the prescriptive literature has stressed precisely the sorts of structural transformations envisioned by theorists of postmodern enterprises.

It must be acknowledged that much of what theorists of the postmodern corporation have described and prescribed has already taken place in U.S. firms. Store clerks with profit-sharing plans (and part-time jobs) wear buttons proclaiming “Ask Me: I’m the Owner!” Companies as redoubtable as International Business Machines and General Motors are divesting and downsizing with breathtaking ferocity, giving their newer smaller operating units more autonomy. Companies of all sizes have transformed work place relations, breaking down traditional barriers between managers and managed, technical and production workers and even employee and customer. They have embraced flexible and adaptive work relations, including “concurrent” management, “cooperative work,” “empowerment,” “delayered hierarchies” and, most of all, teams (Klein and Kraft 1994).

On the surface, this suggests a revolutionary transformation of U.S. corporations of the kind envisioned by postmodern theorists, but to label these changes either postmodern or emergent is to understand them without a history or context. Since the end of World War II, U.S. managers have shifted their attention from control of the shop floor to the design, engineering and R&D departments. Whatever concerns U.S. manufacturers may have had about recalcitrant or disruptive or merely expensive production workers in the early post-War period, since the 1980s managers have felt confident enough in their ability to control the shop floor to pay closer attention to the organization of technical and administrative workers. Managers could now change their focus from merely speeding up workers to more carefully and completely designing their production process (cf. Stalk and Hout 1990).

Traditionally, U.S. manufacturers have stressed functional specialization and competence for both managers and technical workers. This meant that individual managers and technical specialists were rewarded for their ability to master relatively narrow areas, such as quality control or the design of process technology or materials procurement or strategic planning, which with others combined to make up the product life cycle. Although “teams” were always part of U.S. organizational structure (along with “teammates” and “team players”), in traditionally organized corporations such teams were almost always committees made up of representatives of functional units who were given marching orders to take back to the troops.

In practice, individual managers and technical specialists, not teams, were rewarded and promoted on the basis of meeting narrowly defined objectives, e.g., coming in on time and under budget. Such serial, “over-the-wall” approaches to design, manufacture and distribution fit comfortably within the traditional command-and-control hierarchy that still characterizes most U.S. producers (cf. Stalk and Hout 1990).

In the 1980s, facing serious global competition, U.S. manufacturers reassessed their traditional compartmentalization. The demand for a steady stream of new, high quality products led senior managers to conclude that intellectual and conceptual delays, not restrictive work practices on the shop floor, were the main obstacles to timely production of high quality products. Although they may not have cited Perrow (1988) or Gouldner (1954), management and engineering literatures began to reflect a keen awareness of the contradictions of trying to control and inspire at the same time. The problem facing U.S. industry was, in short, the unreliable and sporadic nature of intellectual and administrative “value-adding” activities. Value-adding workers directly contribute to the process of turning a partially complete product or service into a deliverable commodity. Those who do not, in contrast, only watch and bookkeep goods-in-process.
Thus, there can be only one goal: to reduce the “slack time” in design and administration as well as in production. In shifting their emphasis from production to design and engineering, senior managers have focused on technical and administrative workers the source of the competitive/quality dilemma of American industry. More quickly operationalizing intellectual production — or eliminating altogether those who merely guard or bookkeep — is the key to the survival of the firm, the industry, and even, in the more melodramatic writings of engineers and managers, of U.S. manufacturing itself.

This reassessment of the middle layers of employees has been the basis of the radical change in the way U.S. firms do business. Journals from Plastics World to the Harvard Business Review to American Machinist and the IBM Systems Journal print articles describing the virtues of multifunctional and multiskilled teams, employee empowerment and compressed management structures. Kunda’s Engineering Culture (1992) concisely sums up this ideological shift: it is an attempt to gain what he calls “normative control” of engineers and other technical workers in order to speed up their work — to make them think faster.

There is here an obvious irony. Competitive pressures have compelled U.S. manufacturers to search for flexible and adaptive systems. “Flexibility” and “adaptivity” are examples of local narratives: they reflect pressures on managers to innovate and respond quickly. But even as managers construct work relations to help them innovate and to respond quickly, “flexibility” and “adaptivity” are approached as different modules of work relations which can be conceptually decomposed, quantified, measured and bureaucratically managed, and whose outcomes can be rationally forecast and controlled. Inevitably, complex flow charts show up.

We offer an example. The accompanying figure reproduces a process chart diagramming the work flow of a single stage in the product development cycle of a single product in a well regarded high technology firm strongly committed to team work and loosely-coupled organizational forms. This is a graphical representation of the organization of work involved in the most preliminary specification stage of a product whose functions are unclear, whose markets are hypothetical and for which no raw materials or process (manufacturing) technologies have been selected.

In addition to its extraordinary detail and complexity, the flow chart displays another quality. It reflects the assumption by managers that the most diffuse aspect of design and planning work itself can be subjected to Taylorist decomposition — and therefore Taylorist control.

The diagram, while slightly more elaborate than similar efforts, is characteristic of currently fashionable engineering management models of the division of engineering labor. Even if not applied literally — it is unlikely so Byzantine a structure could ever be completely inflicted on human beings — it graphically reproduces management assumptions about its ability to decompose

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2Where to start? Two very different examples: Businessweek (1992) and Davidson (1993).

3The cyclical preoccupations of U.S. managers with seizing, first, engineering control from production workers, then normative control of design and other “intellectual workers” is brilliantly documented by Barley and Kunda (1993).

4We are stuck by this recapitulation of the history computer software. From its inception, software work was forced into conventional engineering models of industrial organization even though there was very good evidence that it shouldn’t be (cf. Kraft and Dubnoff 1986). The spectacular advances of systems analysis and systems theory and formal design techniques, such as prototyping and expert systems, have now been applied with great energy to the reorganization of U.S. engineering work. This has reinforced already strong tendencies among U.S managers to decompose and map everything in sight.
and control engineering, design and supervisory labor, in this case, in a firm which prides itself on its flexibility and its faith in “empowered” work teams.

The text which accompanies the diagram in the original article emphasizes the importance of multiskilled and multifunctional teams, flat hierarchies and cooperation. Its main theme is that customer-driven, high quality products can be produced quickly when product teams are composed of representatives of all components of the production process, from design to marketing. Formal job titles and job descriptions are less important than the willingness of team members to make contributions to the collective process of product development.

But the diagram itself refutes the claim of multifunctionality and multiskill: this is fundamentally a sophisticated and complex revision of the technical components of Scientific Management, whose subjects are now intellectual rather than manual workers. The process is multiskilled, as all organizational processes must be, and the teams are in some sense multifunctional, but the individual members of the product definition teams are not.

Figure 1.
(© 1990 IEEE International Engineering Management Conference, from Wilson, pg. 67.)
And this is the point. If teams were originally committees that transmitted marching orders to the troops, now they are the troops. Once again, IT plays a critical role. The product definition process chart reflects no postmodern, emergent organization at work: this is modernism on a LAN. U.S. firms, trying to reduce the slack time and unproductive labor of technical and management employees, to compel cooperation and mandate creativity, are using real-time continuous feedback systems to divide and fragment work and then to police and bookkeep the results. This is not postmodern boundaryless interaction. This is intellectual Taylorism with a vengeance.

7. POSTMODERN MANAGEMENT IN A MODERN WORLD

With Taylorism we arrive at the fuzzy line which divides “technical” engineering from the systematic control of people. In particular, it is time to focus on the significant contradictions in the way “postmodern” senior managers in the United States have redefined their own roles, the roles of the employees and of their firms.

Modern U.S. corporations have by and large succeeded in their goal of standardizing production work and using interchangeable labor “inputs.” The intractable problem of the modern corporation — its inability in Perrow’s terms to be both predictable and creative — is the outcome of its very success. Empowerment, powersharing, concurrent management, team work and so on, are attempts to extend the scope of management control to those workers whose jobs have up to now resisted the cruder forms of direct control (cf. Parker and Slaughter 1988). Fabricating procedures to manage “flexibility” by appropriating and controlling the intellectual labor of designers, engineers and even managers reflects the very modern attempt by managers to anticipate everything and to control everything. Again, Kunda’s description of normative control is relevant.

In short, creating multifunctional teams without a concomitant powersharing at the top as well as the bottom is just another way of flogging middle level managers and technical specialists, i.e., it constitutes a white-collar speed-up rather than genuine cooperation. This underlies much of the popularity of “empowerment” and “multi” teams among management theorists and consultants. Like all ideological terms, they are designed to conceal as well as explain. Here, the terms are an attempt to soften the threat to engineers and middle managers who are being forced to work in ways which threaten their traditional individual career and occupational expectations.

In spite of the foregoing, it is possible that some postmodern organizational forms may yet emerge as a competing paradigm to conventional and thoroughly modern corporate organization. It may be, for example, that the current efforts to reorganize the work of middle managers and technical specialists are only a transitional phase on the way to a generalized post-modern revolution. The global economy and the international division of labor — or, in simpler language, the wide disparity in wages and intellectual and material resources from country to country — have polarized nations as well as intellectual and manual labor. Work is not simply divided between engineers and systems analysts on the one hand and electronics assemblers and data entry clerks on the other. It is also parcelled out to competing systems analysts in Silicon Valley and New Delhi, as well as competing auto assemblers in Hermosillo, Ypsilanti and Coventry.

Some U.S. firms have stressed concentrating their efforts on their “core competencies” to make themselves even more flexible. Increasingly, core competencies are defined in terms of high value-adding and information intensive activities, i.e., design, engineering, and marketing labor. The result is often a firm with a relatively high proportion of “mind” versus manual workers. Such a firm then can then claim it is “knowledge based” and adaptive — and thus “postmodern.”

But this too is an old, not a new, story. Corporate motives are different but the behavior and outcome are not. U.S. firms have always searched for cheap labor, including offshore labor. In the past it was in the service of the “bottom line” and took the form of branch plants. Today it is in the name of “flexibility” and takes the form of “strategic partnering.” To use a topical example, if
General Electric (USA) is attempting to create, by executive fiat, a new, more flexible, team-based, high value-adding company, GE still stickers consumer electronic products produced by sweated labor in Malaysia and China, if no longer in Indiana or Connecticut. General Electric, in other words, may indeed be on its way to becoming a less bureaucratic, postmodern firm. But if it does, it will not be because it has abolished modern, military-style forms of coercive production relations. It has simply subcontracted them far enough away to be invisible. In the language of postmodern theory, the meta-narrative of “cost-reduction” has been replaced by the meta-narrative of “flexibility.” In the more modest language of emergence theory, the local narrative of “control” remains intact.

8. CONCLUSION AND SUMMARY

So far, the development of a U.S. postmodern industrial organization has meant attacking linearity, over-the-wall relationships and reductionist partitioning in the development and marketing of products. It has also meant a more systematic internalization of management norms and expectations. In none of this is the traditional chasm bridged between managers and technologists, who have some real discretion, and low level workers (many of whom are now conveniently somewhere else) who have increased responsibility but little real authority (cf. Clement 1994).

There is no question that U.S. firms are in the midst of major transformations. However, the major change has been a rather old-fashioned and thoroughly conventional — if one prefers, “modern” — reorientation toward the role and utility of middle managers, a refinement and extension of Taylorist principles through sophisticated computer-based command-and-control systems and a flurry of ideological activity. These in turn have been accompanied by the progressive subcontracting of relatively expensive manufacturing components to “strategic partners” whose organizational forms and management methods remain ruthlessly modern.

Taken together, these suggest what the outcomes are likely to be of the revolution in U.S., indeed, global, business enterprises. It is a revolutionary reform that leaves the basic social relations of the work place unchanged, a way, to borrow a phrase from David Noble, of preserving the old system in the name of transforming it. There has indeed been change, but the change has been to refine and enlarge the techniques used by managers to control the behavior of the organization’s workers, not empower them or liberate them from control.

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