

JOURNAL OF BUSINESS AND MANAGEMENT

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MANAGEMENT

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Systems Thinking to Strategic
Management

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INTERNATIONAL BUSINESS

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An Exploration of Failure in Global
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PUBLIC POLICY

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Employee Drug Testing: Some
Business Guidelines



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FROM THE EDITOR'S DESK

The **JOURNAL OF BUSINESS AND MANAGEMENT** proudly announces its new affiliation with the Western Decision Sciences Institute (WDSI). Beginning with this issue, the **JOURNAL OF BUSINESS AND MANAGEMENT** will be jointly published by the WDSI and the School of Management at California State University, Dominguez Hills. Every year, one of our two issues will be selected from the best papers of the WDSI annual conference.

Articles for this issue were submitted from throughout the United States and from several foreign countries. Therefore, the affiliations of the contributing authors reveal a broad geographic coverage: University of Missouri, SUNY Buffalo, Georgia Institute of Technology, Middle Tennessee State University, Monmouth College (New Jersey), Arizona State University, Northern Illinois University and the Affiliated Systems Corporation, Houston.

Industrial economic concepts have long dominated strategic management. But **GREGORY DANEKE** contends that a significant gap between research and practice suggests that the economic paradigm has limited real world application, particularly in turbulent environments. In a provocative conceptual piece, Daneke urges a return to systems thinking for this environment using new, non-linear characterizations of strategic choice.

Patterns of attraction towards organizational ideology and commitment are perhaps more common than generally accepted. A study by **ALBERT KING** defines and measures a multiphase model of organizational ideology in a large thermoplastics firm that permits human resources managers to assess which personnel and jobs are most strongly bonded to the organization and which are most likely candidates for intervention and revitalization. The analysis supports the notion of a stepwise movement from loyalty to value congruence to perceived commitment in strengthening ideological attraction to organization.

A new, "soft" side of Total Quality Management (TQM) has begun to emerge, one that emphasizes customer awareness within the organization. **JESS BORONICO** and **JOSEPH MOSCA** provide a model that would contribute to the effective involvement of human resources management in the TQM plan for an existing organization. The model would include a "Customer Care" group that can monitor the progress towards the firm's goal in achieving TQM, and provide feedback at all levels.

What explains the wealth loss that occurs for shareholders and bondholders surrounding the announcement of bankruptcy? The answer lies in the bond covenants, according to **STEPHEN FERRIS**, **NARAYANAN JAYARAMAN** and **VIDHAN GOYAL**. Their survey of 161 bonds issued by firms that subsequently went bankrupt also indicates that another factor in the wealth loss is the frequency of bond issue downgrades by professional rating agencies.

Global collaborative alliances are increasing and may presage a trend in international trading. Yet evidence indicates that the potential for failure of these alliances is increasing. **VERONICA HORTON** examines the possible reasons for these failures, and indicates those most likely to fail. Horton suggests valuable precautions before entering such an alliance.

Because of the hefty toll on American industry exacted by drug abuse, workplace drug testing programs have proliferated. **ISAAC MONTOYA** offers a framework for fashioning an effective program that complies with federal guidelines. Montoya shows how to build consensus for the program while keeping its costs under control.

FRANKLIN STRIER

BURHAN F. YAVAS

COMING FULL CIRCLE: ON THE RETURN OF SYSTEMS THINKING TO STRATEGIC MANAGEMENT[†]

Gregory A. Daneke*

This conceptual overview tracks the development of the study of corporate strategy from its early beginning and its adolescence of atheoretical empiricism to its current reliance on a range of theories. It is suggested the lack of a unifying paradigm, coupled with the popularity of certain modified economic concepts have produced a significant gap between research and practice. While extremely useful, these concepts fail to fully address the critical issues of turbulence and evolution. This discussion argues for a return to elements of systems thinking and the fashioning of new complex, non-linear dynamical characterizations of strategic choice.

The burgeoning research realm of strategic management (previously planning or policy) has sought for some time to distinguish itself from other domains through the development of its own conceptual elements. Interestingly enough, this quest for a unique identity has led many to embrace the concepts and methods of economics; particularly

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* Gregory A. Daneke is a Professor of Public Affairs at Arizona State University.

industrial organization (I.O.) economics. While extremely useful in the exploring elements of strategy under “stylized” constraints (markets and/or oligopolies), these notions have proven somewhat less durable in “real world” applications. Thus, they have been continually augmented with conceptual insights from the ongoing enterprise known as behavioral and/or neoinstitutional economics (e.g., resource dependency, transaction costs, and the like), as well as elements from more generic organization theories (especially ecological models). These latter elements have allowed strategic choice theories to overcome some of the limitations posed by economics’ preoccupation with static equilibrium, yet in general they still lack adequate characterizations of turbulent environments. This discussion suggests that turbulence, as well as complexity, can be much better appreciated through the redevelopment of the systems approach to strategic management. Unlike past uses of the systems paradigm, however, this approach would be far less mechanistic and focus on the non-linear dynamics like those found in recent advances in the physical and biological sciences.

A BRIEF HISTORY OF STRATEGY

Curiously enough at about the time that “strategic management” was hitting its stride as a discrete field of academic inquiry (the early 1980s), the practice of corporate policy had fallen on pretty hard times. Major business magazines (e.g., *Business Week*, 1984) began calling down a plague on the entire enterprise of corporate strategizing. Increasingly rigorous studies of the relationship between “strategy” and “performance” not only reconfirmed the practical criticisms, they tended to widen the gap between theory and practice. Given their misperceived concreteness, as well as unifying capability, elements of neoclassical economic theory were retrofitted to fill this void. Yet rather than fully addressing the turbulence which generated much of the performance problem, various economic approaches have, by and large, served to exacerbate the conceptual lacunae.

Beginning as it did in applied “systems” and decision theories, it is not surprising that much of early academic work on corporate policy was decidedly prescriptive in character. Strategic planning, as a major corporate activity, began as an attempt to merely expand conventional budgeting and control techniques beyond the customary single-year format, through the use of five-year projections. In the late 1940s, von Neuman and Morgenstern introduced the idea of strategic “reacting” (see: Bracker, 1980) to more immediate changes in business conditions. Peter Drucker (1959) introduced the modern version of strategic planning, distinguishing between forecasting and planning, and emphasizing creative dimensions of the latter. In the early 1960s, Alfred D. Chandler (1962), a business historian, developed vital perspectives on the centrality of goal formulation and coined the famous aphorism that “structure follows strategy.” Ansoff (1979) and Ackoff (1981) combined these observations with those of applied general systems theory to codify what is commonly thought of as the standard normative model of strategic planning.

By the 1980s, increasingly turbulent environments, including accelerating cycles of recession, precipitated a radical reassessment of planning practices, especially those that relied on mathematically sophisticated prognostications. *Business Week* (1984) reported that “Clearly, the quantitative, formula-matrix approaches to strategic planning ... are out of favor” (p. 63). However, by this time strategy development in mature firms had evolved beyond mere strategic planning to strategic management. Hax and Majluf (1984) described the evolution of strategic planning involving five distinctive epochs: budgeting and financial control, long-range planning, business policy, corporate strategic planning, and strategic management. By strategic management, they implied a more fully integrated, rather than isolated activity. Meanwhile, “strategic management” as a distinct field of study began to develop rigorous empirical studies. The development of a large scale data base coincides with this emergence (e.g., PIMS; see: Buzzel & Gale, 1987). Yet, as with applied social research generally, the pell-mell pursuit of more rigorous methodologies (i.e., quantitative) created curious conceptual deficiencies. Those who were defining the field back in the 1970s decried the lack of conceptual

development (note: Schendel & Hoffer, 1979), and in a more recent reassessment, Schendel and Cool (1988) concluded that “there still is no central organizing paradigm for the field” (p. 27). Hence, viable theoretical building blocks and important empirical insights often became isolated.

Concern with this malaise of atheoretical empiricism, caused “back to basics” movement of sorts in which several scholars developed useful mid-range theories (note: Barney, 1989; Burgelman, 1988; Mintzberg, 1990; and Venkatraman, 1990); yet, these formulations have proved difficult to integrate into an alternative paradigm. Meanwhile, the ever-popular quantitative studies of the often weak relationship between normative strategies and/or organization characteristics and corporate performance continued to cast a practical cloud over the entire enterprise (Christensen & Montgomery, 1981; Montgomery & Singh, 1984; Reed & Luftman, 1986; Laverty, 1989; Hart & Banbury, 1992).

The extensive volume and high quality of this work notwithstanding, the cumulative impact of most of this mid-range effort, has been pretty disappointing. Daft and Buenger (1990) contend that much of the collective knowledge of strategic management was simply irrelevant (also note: Beer, 1992). Bettis (1991) invokes Daft and Lewin (1990) “straight jacket” indictment of organizational science generally to describe the field. That is to say that strategic management became constrained by its own preoccupation with inductive methods.

On the practical side, some useful conceptual, as well as empirical, studies began to identify reasons for the declining success of specific strategies (e.g., diversification). These reasons were multiple, but generally explained in terms of “core competencies” (Prahalad & Hamel, 1990) and/or “resource-dependency” (see Peteraf, 1991). Yet aside from a few developmental inquiries, the field remained mired in the theoretical midlands, and those managers who paid attention knew more about what *not* to do.

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Meanwhile, of course, a strong countervailing force to the above trends was the fashioning of various economic approaches to strategy. The often overblown prestige (economics being the only social science for which a Nobel Prize is given), largely mistaken practicality, and unified precepts combined with the very real need for deductive speculations to move economics to the forefront of theorizing in numerous specializations. With specific reference to strategic management, Rumelt, Schendel and Teece (1994) offer the following reasons for the rise of economic approaches:

- The interpretive power of economics with regard to mounting bodies of data (e.g., PIMS);
- The importance of the “experience curve” to increasing diversified firms;
- The problem of “profit persistence” in increasing competitive global markets;
- The constant conceptual evolution, embracing various neoinstitutional and behavioral elements (e.g., transaction-costs, agency and game theories); and
- The increasingly academic (e.g., disciplinary) atmosphere within business schools (pp. 527-555).

Nowhere perhaps were these trends more profoundly exhibited than in the overwhelming popularity of Michael Porter’s (1980, 1985) so-called “competitive advantage” approach. Hence, it can be used to characterize this recent epoch of theory driven research.

THE PORTER PARADIGM?

The approach popularized by Porter actually predates him by several years, and is essentially the translation of certain simple theoretical speculations from “industrial organization” (I.O.) economics. Generally speaking, I.O. is the subfield of neoclassical (or mainstream) economics which deals with the formation and regulation of “oligopoly” (see: Shapiro, 1987). One of the least glamorous subfields, I.O. has emerged into the

vanguard of microeconomic theory through its development of game-theoretic approaches (see: Kreps, 1990). Game theory, which harkens back to the observations of Cournot (1838) and extended in modern times by systems theorists (see: von Neuman & Morgenstern, 1944), had been largely ignored by mainstream economists until it found increasing applications in I.O.

In a sense, Porter did for I.O. what Marx reputed to do for Hegel—turning it on its head; that is, shifting concern from the social utility of industrial structures to firm level implications. However, this shift of focus has harbingers in Hotelling's (1929) path-breaking work on spatial location, product differentiation, and "contestable markets" (ones with free entry and exit) and von Stackelberg's (1934) modeling of the "first mover advantage." Moreover, current interpretations owe much to the explorations of Rumelt (1974), Hatten and Schendel (1977), Spence (1977), and Caves (1980). The power of Porter's contribution has been in recasting and repackaging these diverse observations for the noneconomist.

The prime elements of Porter's approach are derived, for the most part, from a set of assumptions regarding "industrial structures," "oligopolistic competitive," and firm level positioning. Contrary to conventional models of corporate strategy which focus on consistency and fit with internal and external forces, such as (a) company strengths and weaknesses; (b) implementor values; (c) environmental threats and opportunities; and (d) broader societal expectations, Porter argues that firms should center their attention on the variables of industry structure, and the "five forces" of competition within an industry. These include (Porter, 1980:4):

- Bargaining power of suppliers;
- Barriers to entry;
- Threat of substitution;
- Bargaining power of buyers; and,
- Rivalry among existing firms.

As alluded to above, the goal is to position a firm in such a way that it achieves “rents” in excess of the “floor rate” which accrues to firms within a competitive industry. In essence, the traditional social utility aim of I.O. (perfectly competitive markets) are being subverted by this approach.

“In a sense, Porter did for I.O. what Marx reputed to do for Hegel—turning it on its head; that is, shifting concern from the social utility of industrial structures to firm level implications.”

The most compelling element of Porter’s approach is his detailed analysis of the factors which make up the above elements. For example, entry barriers can be broken down into “economics of scale,” “experience curves,” “capital costs,” and “access to distribution channels,” as well as “government regulation” (which often limit entry). Furthermore, rivalry dynamics are divided into eight distinct patterns as well as intensities. Strategy based upon these structural analyses is aimed at developing a “defendable” position against the competitive forces outlined above. Basically this involves choosing one of the following major generic positions (Porter, 1980:35): “cost leadership,” “differentiation,” or “focus.” The purpose of this choice is, according to Porter (p. 41), avoiding being stuck between clear strategies. However, some find these generics quite limiting (see: Dess & Davis, 1984; and Wright, 1987). Moreover, choosing a specific strategy depends upon a careful analysis of competitors, as well as assumptions of how they are likely to respond to present and future choices.

Despite how tantalizing these repositioning themes had become, discovering one’s competitive niche amid accelerating product life cycles,

extended business cycles, and complex coordination dynamics (e.g., network externalities) became increasingly difficult. In fairness, economics approaches are swiftly adapting to other contingencies. Yet, in the process they further strain, and in some cases even discredit, the basic paradigm. As Mirowski (1989) demonstrates, conventional economics is not only patterned after, it is isomorphically aligned to the models of 19th century physics (e.g. "general equilibrium"); and, these models have a difficult time dealing with change, especially discontinuous change.

"As business environments continue to experience accelerating rates of change and cycles give way to turbulence, patent formulas give way to more fluid strategies."

MANAGEMENT FOR A TURBULENT WORLD

As business environments continue to experience accelerating rates of change and cycles give way to turbulence, patent formulas give way to more fluid strategies. Meanwhile the quest for explanation, let alone prediction, has taken a number of divergent paths ranging from basic modifications of economic parameters to approaches which attempt to incorporate the methods as well as the metaphors of post-modern science (e.g., non-linear dynamics). Intermingled among these are a number of distillations of parochial wisdom aimed at challenging both existing practice and academic preoccupations. What follows is merely a sampling of a few of these diverse perspectives designed to capture the general flavor of emerging concerns.

A NEW ECONOMICS OF STRATEGY

Certain elements of this new economics of corporate strategy predate Porter, while others arise as a critique of contemporary competitive strategy. Still others attempt to apply proven concepts from accounting and finance (e.g., principal-agent models) and/or neoinstitutional economics (e.g., transaction cost analysis). Obviously, applications of modified economic concepts are so ubiquitous that only a few contributions can be cited here.

Those who wish to improve upon Porter would have to include Ghemawat's (1985; 1991) work on "sustainable advantage" and access to resources, as well as Rumelt's reassessment of the "industry perspective" (1989). Similar aspirations appear to be manifest in work aimed at extending the *resource-based* perspective (e.g., Barney, 1989; Grant & Boardman, 1990; Peteraf, 1991), to strategy formation. Further, richness has certainly been added to the narrow notions of the firm via neoinstitutional (e.g., Williamson, 1985) and agency theories (derived from the likes of Fama, 1980). These new transaction and information-based theories produce a number of interesting insights into the nature of strategic choice as well as organizational behavior generally (see: Eisenhardt, 1989). Yet to the extent that the new economics remains rooted in the old economics (e.g., neoclassical theory), inquiry is still somewhat limited. As David Teece (1984) observed when these trends began, there are certain fundamental tensions between orthodox economics and the field of strategic management. These include:

- "treatment of know-how";
- emphasis on comparative statistics and "focus on equilibrium";
- suppression of entrepreneurship;
- use of stylized markets; and
- assumptions about rational behavior. (pp. 80-81)

A few strategy theorists have attempted to address these incongruities. For example, Raphael Amit and Paul Shoemaker (1990) strive to reanchor

the economics of strategic management by building a new conceptual base of practical elements such as "Key Success Factors" (KSF). To accomplish this, they draw upon ingredients from such far-flung corners as traditional institutional economics (e.g., Schumpeter, 1934), and "decision theory" (e.g., Kahneman, Slovic, & Tversky, 1982). Amit and Shoemaker begin weaving this "crazy quilt" of diverse philosophical perspectives by noting the inherent conceptual weaknesses of existing competitive strategy perspectives. They recognize that empirical studies of KSF are, at best, "ex post" explanations of a firm's past and perhaps fortuitous (rather than strategic) performance. Meanwhile, "ex ante" models say very little about the "dimensions of competition" that are likely to prevail in the future. The missing links obviously involve "uncertainty," "complexity," and "organizational conflicts," as well as required "competencies." Thus, in addition to "industry analysis" and the "resource" perspective, they call for full-scale integration of the insights of studies of "decisions under uncertainty." Moreover, they claim that their notion of resources is more akin to institutional (via: De Gregori, 1987) than it is to neoclassical economics. This unabashed borrowing is refreshing, yet one must ask whether these apples and oranges will, in effect, combine. For instance, whose definition of rational choice would they accept, or how can the methodological individualism of conventional economics be reconciled with the holism of the institutionalists? Hopefully, these epistemic inquiries can be answered before the bloodlines are completely lost in the formalization of a new generation of mongrel models.

Another intriguing strain of thinking is what might be called the dynamics of the "stick-to-it scenario." This realm is well-represented by the work of Pankaj Ghemawat (1985; 1991), and Julio Rotemberg and Garth Saloner (1990). Ghemawat probably goes the furthest in asserting that "persistence in strategy" is the factor which distinguishes between front-runners and also-rans. Moreover, commitment is the means by which firms overcome "the failure of success factors," and develop "sustainable" strategies (Ghemawat, 1991). If he's correct, then many conventional approaches are unable to produce strategies which are at once stable over the long haul, yet involve the design of systems which quickly adapt to

environmental changes. Rotemberg and Saloner (1990) enhance this perspective by demonstrating mathematically that “narrow strategies” (which often entail ignoring certain other “profitable opportunities”), may actually outperformance opportunism in the long run.

Jeffrey Williams’ (1992) contribution to the literature of *sustainable advantage* is also worth noting as it portends a significant theoretical departure. He takes conventional *resource-based core capability* notions into fairly uncharted realms by directing attention to various “fast-cycle resource” domains (e.g., high-tech industries) where “intense rivalry” and “Schumpeterian dynamics,” require “frame-breaking” strategies (i.e., ones which change the basic rules of the game). However, even the most sophisticated game-theoretics (Note: Fudenberg & Tirole, 1991) don’t readily facilitate this level of anticipatory adaptive-learning. Invoking Argyris’s (1982) famed characterization, “single loop” models do not necessarily engender “double-loop” learning.

The Strategic Management Research Group (SMRG) at the University of Maryland gets around this issue by interjecting an elaborate “communication-information theory” model into their assessment of competitive interactions (Smith, Grimm, & Gannon, 1992). Like Williams, “timing” is everything for the Maryland group, and the “competitive event” (“action/reaction”) itself becomes the unit of analysis. But one might argue that this shift, along with the reliance on communications theory, has taken them well “beyond the pale” of all economic thinking. Perhaps.

THE UNCONVENTIONAL WISDOM

A handful of recent depictions of the parochial wisdom, in addition to providing informative observations, point toward novel theoretical domains. In this way, they may have bridged the customary chasm of “problem-focused vs. theory-focused” research (see: Weick, 1992). From the perspective of this discussion, the recent book by Charles Hampden-Turner, (1990) is quite instructive. In addition to taking numerous practical

criticisms of Porter, Turner is acutely aware of theoretical issues. Moreover, his own theory-building is based upon extensive interviews with management personnel from widely diverse firms. The nexus of his approach is the notion of "value reconciliation" (rather than Porter's value-added chain) through the process of "cybernetic learning." Increasingly turbulent environments demand a skillful "helmsman," one who can accommodate conflicting values while keeping an eye on the ultimate course. The course is oriented toward evolutionary viability rather than short-term profitability. Moreover, true "helmsmanship" recognizes trade-offs between "economies of scale" and "economies of flexibility." In some instances, this may entail steering directly into the middle of Porter's cost/quality "no man's land."

A complementary set of perspectives is distilled from the case analyses compiled by Hinnings and Greenwood (1990). Drawing upon the organizational design perspective (Galbraith, 1975, also note: Mintzberg, 1990), they establish "archetypes" which include "ideas, beliefs and values" that inhibit change. Since these characterizations greatly enhance the picture of "competencies" and "capacities" they could be used to flesh out the dependencies and capacity notions alluded to in the new economics literature. However, the gem of their conceptual explorations is the realization that "change and stability" are two sides of the same coin (p. 191). These notions set the stage for more elaborate inquiries into the internal dynamics of discontinuous forces.

Another prime example of the collective wisdom is Peter Senge's *Fifth Discipline* (1990). This work is so diffuse that it is impossible to do justice to it in any brief summary. The core concept is a notion of "organizational learning" which goes well beyond traditional characterizations of environmental adaptations, and moves toward "generative learning," which Senge sees as the crux of human creativity, innovation, and long-term evolution. His notion of ubiquitous change and organizational visioning also anticipate recent developments in the sciences of non-linear dynamical sciences (discussed below). Essentially, this view maintains that amid complex and often chaotic systems, individuals can still choose their own

trajectories, and learn how to bring them about. For Senge, the linchpin of this process of cybernetic self-wiring is the integrative capacities of "systems thinking." Unfortunately, he forgets that the current generation of strategy scholars (especially those in the U.S.) have lost sight of systems approaches. Moreover, he fails to appreciate that systems thinking cannot merely be grafted onto linear and reductionist theories. Hence while his primary audience of practitioners can comprehend the importance of systems, his secondary aim of academic appreciation may not be necessarily forthcoming.

Perhaps the most far-reaching representation of the parochial wisdom is Edward Deming's (1993) homey little collection of observations, published just prior to his death. Deming, who was originally trained in physics, is, of course, most famous for his work on quality management in Japan, during the 1950s. This collection, from a long lifetime of experiences, has the rather ambitious title: *The New Economics for Industry, Government and Education*. The message, however, is quite elemental and eloquent. Essentially, Deming argues for a simple systemic view of the world in which non-hierarchical organizations emphasize greater cooperation and less competition (note particularly chapters 3 and 4). In addition, he reiterates a number of well-known lessons about the inevitability of "variation." These lessons which form the basis of his unique technique tend to contradict various popular "quality control" methods (e.g., zero defects, six sigma, etc.). What is perhaps more interesting is that Deming's approach has been retrofitted to demonstrate certain applications of "chaos theory" (e.g., Priesmeyer, 1992). Stated simply, this approach strives to discover an organization's natural rhythms prior to establishing "upper and lower limits." As more of these simple notions are given theoretical as well as practical relevance, perhaps Edward Deming's great legacy will continue to grow.

FROM EVOLUTIONARY TO DISCONTINUOUS CHANGE DYNAMICS

The missing link in much of strategic change literature is a process model of radical realignments. Several organization scholars have grappled with the problem (e.g., Greiner, 1972; Quinn, 1980; Nelson & Winter, 1982; and Meyer, Brooks, & Goes, 1990), yet the exact relationship between evolutionary and revolutionary change remains obscure, at best. What is especially cloudy is how strategists creatively respond to the type of turbulence normally characterized as discontinuities.

"The missing link in much of strategic change literature is a process model of radical realignments."

In contrast, some of the work in organizational change argued for greater awareness of new evolutionary theories emerging in the physical and biological sciences, known as "self-organization" and/or "dissipative structures" (see: Jantsch, 1980; Gemmil & Smith, 1985; Daneke, 1988). In a recent review of revolutionary change theories, Connie Gersick (1991) labels this domain "Grand theory" and suggests that it is a logical extension of an emerging paradigm of "punctuated equilibrium." While this may be a useful characterization, Erich Jantsch (1980) maintains that "self-organization" is actually a much more radical, yet potentially more powerful, concept of evolutionary change. He contends:

In reaction to the Darwinian image of steady morphological development by ever renewed adaptation, the equally misleading image of a "punctuated equilibrium" has been proposed, a basic equilibrium state in which chance developments occur here and there.

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Both extreme views result from a one-sidedly microscopic view. In the frame of a co-evolution of macro and microsystems there is never equilibrium. (p. 239)

In other words, what one perceives as equilibrium is merely a temporary stability within the dynamics of complex co-evolutionary systems. More to the point, order itself arises out of constant fluctuation (see: Nicholas & Prigogine, 1977). In the natural sciences, these concepts form the basis for what has recently been labeled "chaos theory" (see: Abraham, 1987; for a non-technical discussion, see: Gleick, 1987; Prigogine & Allen, 1982; Nicholas & Prigogine, 1989) and/or "complexity" (for a non-technical discussion, see: Waldrop, 1992). Systems researchers (especially Europeans) have applied these more elaborate evolutionary understandings (non-Darwinian) to engineering and some social phenomena for some time (see: Schieve & Allen, 1982). With specific reference to the evolution of high technology industries, a few have found these notions quite compelling. Gerald Silverberg (1988) elaborates on this research as follows:

Within certain domains, in particular, in the neighborhood of a structural instability, these interactions can often be represented at an aggregate level by a small number of *order parameters* which summarize the net result of the complex of feedbacks constraining the behavior of the subsystems... Moreover, self-organizing systems can undergo a succession of such structural transformations in response to generalized changes in outside conditions coupled with internal fluctuations at the microscopic level (p. 533).

THE CHAOS OF CHAOS APPLICATIONS

Only recently have explorations of this type begun in earnest in the United States, through the auspices of the Santa Fe Institute (see: Waldrop, 1992). A conference held there in September 1987 brought together Noble class economists and physicists to discuss the global "economy as an

evolving complex system” (see: Anderson, Arrow, & Pines, 1988). Waldrop (1992) summarizes the implications of this epiphany as follows:

Instead of emphasizing decreasing returns, static equilibrium, and perfect rationality, as in the neoclassical view, the Santa Fe team would emphasize increasing returns, bounded rationality, and the dynamics of evolution and learning. Instead of basing their theory on assumptions that were mathematically convenient, they would try to make models that were psychologically realistic. Instead of viewing the economy as some kind of Newtonian machine, they would see it as something organic, adaptive, surprising, and alive. Instead of talking about the world as if it were a static thing buried deep in the frozen regime ... they would learn how to think about the world as a dynamic, ever-changing system poised at the edge of chaos. (p. 245)

Unfortunately, only a small handful of economists actually adhere to this so-called “Santa Fe Perspective.”

Nevertheless, for many less preordained realms of social inquiry, these explorations are, in the words of the Ghostbusters, “an event of Biblical proportions.” James Gleick (1987) describes the nexus of this movement as a complete conceptual reversal, where now, “Simple systems give rise to complex behavior. Complex systems give rise to simple behavior. And most important, the laws of complexity hold universally ... ” (p. 304). Essentially, this perspective when applied to the social sciences constitutes a dramatic “paradigm shift,” literally reversing a number of critical elements (see table).

TABLE: SHIFTING PARADIGMS

Conventional	Alternative
<ul style="list-style-type: none"> • Largely static, linear, Newtonian, mechanical worldview; • At or seeking equilibrium; • Statistics used to separate predictable from random and intractable; with <i>processes</i> as probabilities; • Focus on quantities and the pricing mechanisms; • Reductionist; • Individual as unit of analysis; with rational choice parameters; • Decreasing returns; • Forecasting by extrapolating from past trends; • “Single-loop” learning; • Economics as architectonic science. 	<ul style="list-style-type: none"> • Ever-fluid, non-linear, complex, open systems perspective; • Occasionally orderly but “far from equilibrium”; • <i>Chaos and complexity</i> mathematics used to locate the deterministic amid the unpredictable; with <i>products</i> as probabilities; • Focus on processes, patterns, potentialities and diverse values; • Holistic; • Synergistic, co-evolving individuals and institutions, with <i>systemic choice</i> parameters; • Increasing returns; • Creative evolution through alternative trajectories; • “Double-loop,” adaptive learning, and “perpetual novelty”; • Ecology (social/institutional as well as bio-cognitive) as the architectonic science.

These notions are currently being applied in a highly metaphorical fashion in the management literature (see: Wheatley, 1992), and even a few attempts at serious methodological development have emerged (see: Priesmeyer, 1992). These generic applications join a mounting body of primarily anecdotal evidence regarding the presence of “non-linear dynamics” in processes directly related to corporate strategic management (note: Daneke, 1985; DeGreene, 1982; Maruyama, 1982; Morgan, 1983; Gemmill & Smith, 1985; Vertinsky, 1987; Nonaka, 1990; Pascale, 1990; Stacey, 1992; Zimmerman, 1994). Ralph Stacey’s (1992) recent book is the nearest in spirit to earlier efforts, as well as being the most comprehensive. He summarizes the implications of his own version of chaos theory for “strategic thinking,” as follows:

- toward a concern with the effects of the personalities, group dynamics, and learning behaviors of managers in groups;
- toward the creative instability of contention and dialogue ... ;
- toward examining, understanding, and dealing with organizational defense mechanisms and game playing;
- toward an understanding of group learning as a complex process of continually questioning how people are learning;
- toward the opening up of contentious and ambiguous issues;
- toward developing new mental models to design actions for each new strategic situation (pp. 120-121)

This is not to say that his paradigm is complete, or that his characterizations are congruent with the insights emerging from the more rigorous social science explorations (e.g., Schieve & Allen, 1982; Anderson, Arrow & Pines, 1988; and Stein, 1989). Nevertheless, Stacey is highly provocative of future avenues of research. Furthermore, his applications, while primarily metaphorical, are no more tenuous than many

of the precepts that drive much of neo-classical economic theory, or any other managerial metaphors for that matter. When combined with the prior conceptualizations, a set of strategies for management of turbulent change begins to emerge.

THE INSIGHTS OF EARLIER CONCEPTUAL INNOVATORS

Since the concepts of non-linear dynamics have been around for some time (over 50 years), it should not be surprising that a few of its elements filtered into management studies even while it was just gradually taking hold in the sciences. These early applications, while incomplete, provide a number of useful insights into the nature of complex strategic change. Furthermore, they provide vital clues to paths of conceptual reintegration.

One early innovator whom students of management theory would expect to find the forefront of this as well as other movements is Gareth Morgan. The crux of Morgan's work in this area is his assertion of a new logic for the evolution of complex systems which he calls "systemic wisdom" (1983). However, this contribution might have been lost in his overall critique of conventional approaches to corporate strategy. He correctly identifies how a couple of dynamics isolated by modern cyberneticians wreak havoc upon traditional linear planning devices still popular in some corporate circles. Morgan wants students of strategy to take note of Maruyama's (see: 1982) speculations about "deviation amplifying mutual causal processes" (a sort of contextual fungus that arise in complex communication systems). This particular dynamic may, according to Morgan, cause certain strategic adaptations to actually increase the level of turbulence. Interestingly enough, Maruyama's own translation of these notions for strategists (1982) does not lead him to completely despair the possibility of purposeful policy (also note: Daneke, 1985). Furthermore, as Brian Arthur (1990) illustrates, these distortions can produce positive synergism in industries experiencing rapid technical change.

Kenyon De Greene's (1982) evocation of C. S. Holling's work on "resiliency" (1978) in natural systems also supports the prospects of adaptive designs. He uses these observations to produce "rules of thumb" for the effective management of turbulence. Resiliency, essentially, operationalizes Nietzsche's famed dictum: "that which does not kill one makes one stronger." Thus, as De Greene suggests, it may often be advisable to design "safe-fail" systems which build up the firm against large scale shocks, by creating a series of small shocks (334-335). Ilan Vertinsky (1987) further points out that resiliency and other ecological concepts may go a long way toward explaining the enigmatic processes (e.g., tolerance for ambiguity) at work in the successful strategies of Japanese firms.

Similarly curious transformational dynamics may correspond with the uncertainty embracing experimentation of "dissipative structures." As Gemmill and Smith (1985) contend, those organizations which can create new internal configurations in response to environmental turbulence may engender processes of adaptive learning akin to the "symmetry breaking" dynamics currently exhibited for a vast array of natural and artificial phenomena. Ikujiro Nonaka (1988) applies these concepts of "self-organization" to describe the strategy choices of Japanese firms. Furthermore, he (Nonaka, 1990) invokes notions from earlier cybernetics theory, specifically "requisite variety" (see: Ashby, 1955) to explain how such firms use "redundancy" as an innovation strategy. More studies of this type are obviously needed.

ON THE RETURN OF SYSTEMS THINKING

If these bits and pieces of insight have an underlying theory, it is clearly that of systems thinking. Curiously enough, the field of strategic management had its origins in various systems theoretics. Thus, the long-awaited unifying paradigm may have been here all the while. Of course, for current purposes a significant level of refurbishing is required. Reasons why such a rejuvenation process should be undertaken are manifold;

however, beyond being well suited to the current fascination with non-linear dynamics, systems theory provides a viable alternative to the persistent paradigm of neo-classical economics. As Joseph Schumpeter once observed, one "cannot kill a theory with facts" (or folk wisdom for that matter). If one could, the entire pursuit of strategic management might have died long ago. "It takes a theory to kill a theory."

"Curiously enough, the field of strategic management had its origins in various systems theoretics."

SYSTEMS REVISITED

It is well to recall that the field of strategic management had its origins in general systems theory. Concepts such as "purposive design," "adaptive planning," and "strategic innovation" came out of the work of systems theorists (see Emery & Trist, 1965; Ackoff, 1970; and, Catanese & Steiss, 1970). While systems thinking remains the linchpin of much of operational analysis and advanced mathematical applications (see Casti, 1989), it has not been sustained as a prime source of social and organizational inquiry.

Reasons for the untimely demise of the systems paradigm are complex, yet generally relate to the misapplication of its more mechanistic metaphors (those observed in "closed" or non-living systems). Meanwhile, the complex and highly contextual concepts of "open-systems" often proved intractable (see: Wilson, 1980). More subtle, yet perhaps more profound, the emphasis on holism was ideologically unacceptable in the era of methodological and political individualism.

With specific reference to managerial studies, Ashmos and Huber (1987) outline additional misconceptions about the basic research paradigm of general systems, and a number of “missed opportunities” for enhanced organizational understanding. They also describe how systems thinking could be enhanced through recent advances in organization theory. More importantly, they conclude that such a revised systems paradigm would be especially instrumental in studies of “organizational change” and “strategic choice.” A similar conclusion is reached by Igor Ansoff (1987) who alludes to an evolutionary systems paradigm as a means of integrating diverse empirical observations about “strategic behavior.”

THE BASIC PARADIGM

A good generic source of useful concepts regarding the basic “open” or “living systems” paradigm is sociologist Walter Buckley (1967). His general characterization of the “systems perspective” includes the following elements:

- A common vocabulary unifying the several “behavioral” disciplines.
- A technique for treating large complex organizations.
- A synthetic approach where piecemeal analysis is not possible due to the intricate interrelationships of parts that cannot be treated out of context of the whole.
- A viewpoint that gets at the heart of sociology because it sees the sociocultural system in terms of information and communications nets.
- The study of “relations” rather than “entities,” with an emphasis on process and transition probabilities as the basis of a flexible structure with many degrees of freedom.

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- An operationally definable, objective nonanthropomorphic study of purposiveness, goal seeking, system behavior; symbolic cognitive processes; consciousness and self-awareness; and sociocultural emergence and dynamics in general. (p. 39)

The systems paradigm was initially designed to escape the pull of positivism, but it has never quite reached sufficient escape velocity. As David Wilson (1980) explains, it has always been an alternative view of science. He explains:

[T]hough it shares the same scientific attitude, it is profoundly different from the physicalism, reductionalism, one-way causality, and “truth” of logical positivism and empiricism. By investigating organized wholes of many variables, system epistemology requires many new categories of interaction, transaction, organization, and teleology, as well as a view of knowledge as an interaction between the knower and known. It is thereby dependent on multiple biological, psychological, cultural, and linguistic factors. (p. 135)

This original vision of a broadly interdisciplinary science of common process dynamics has recently been reintroduced by diverse groups of scientists being brought together under the rubric of “chaos and complexity” (see: Stein, 1989, Waldrop, 1992). While much of this work is focused on narrow cybernetic problems within the emerging fields of Artificial Intelligence and/or Cognitive Science, certain strains of research have been expanded to reconceptualize realms ranging from biology to social/cultural to institutional evolution (note: Holland, 1987; Jantsch, 1980; Schieve & Allen, 1982). While extremely varied in applications, the following types of general elements can be distilled from this research.

- “search” and/or adaptive and creative learning procedures, as well as evolutionary dynamics;
- contextual parameters which include historical, institutional, and cultural factors, as well as individual preferences and activities;

- nonequilibrium processes inducing self-organization, bifurcations, and reordering at higher levels of complexity;
- cybernetic interactions which include “network externalities” and error amplifications, as well as resiliency.

“The systems paradigm was initially designed to escape the pull of positivism, but it has never quite reached sufficient escape velocity.”

This work, which has its origins in early systems pioneers (e.g. Ashby, 1955; von Bertalanffy, 1968; and Wiener, 1948), now generates simplifying algorithms which characterize the behavior of “adaptive-agents” within complex non-linear systems. Since, these systems create their own rules as they evolve via various discontinuous change dynamics, patterns and processes can best be approximated through simulations (see: Holland, 1987). Such simulations could also be used to study the dynamics of strategic choice at the level of the firm, the industry and the nation state. In turn, these studies would go a long-way toward operationalizing concepts drawn from the unconventional wisdom cited above (e.g. “helmsmanship” and “generative learning”). Furthermore, as Kevin Dooley (1994) notes, research methods are not limited to simulation, but include: “case studies,” metaphorical essays,” as well as “complexity time series modeling.”

The most crucial issue to acknowledge when returning to systemic thinking is that this current emphasis is dramatically different than past incarnations, especially these which found favor in engineering and similar applications. An emphasis on open systems coupled with emerging knowledge about the non-linear dynamics of human institutions, greatly

reduces the methodological hubris of earlier efforts. With specific reference to planning, the notion that one can somehow capture the future using linear projections and/or similar forecasting techniques is essentially demolished. As Henry Mintzberg (1989; 1994) so elaborately details, such notions of planning do not square with the actual practice of strategic management. Moreover, increased understanding of how various elements of human intuition, insight and inspiration interact with institutional constraints and opportunities, while less mysterious are not necessarily any more subject to manipulation. The sensitivity of initial conditions and non-linear dynamics combine to make even deterministic systems highly uncertain. However, knowing this shifts the focus of planning from predicting to creating, and awareness of potential bifurcation points allows one to survive and even thrive on chaos. Likewise, the complex coordination problems posed by increasingly fluid organizations or “virtual corporations” (Davidow & Malone, 1993) are also subject to investigation using the notions of synergism and co-evolution derived from recent advances in systems thinking. Again, models which assume that instability is endemic could greatly enhance the managerial mindset required for these agile adjustments.

CONCLUSION

A serious revival of systems thinking will probably await the formalization of a greatly simplified heuristic of *systemic choice* akin to the “microeconomic theory of the firm” in power and recognition. Yet, in the meantime, there are a variety of interesting and potentially useful speculations to explore. These might include:

- How an evolutionary learning reconciles diverse values with conventional competitive strategy;
- To what extent an emphasis on “resiliency” trade-offs “persistence” and short-term profitability;

- Why “human capital intensity” and “flexibility” (including views of competency enhancing processes) are more vital than conventional “success factors.”
- To what extent coordination across industries conflicts or compliments traditional market signals;
- How entrepreneurial behavior fundamentally changes agency relationships beyond those accounted for in transactional and similar analyses; etc.

These, of course, can and have been, investigated without the aid of systems concepts. Yet, they remain isolated insights. As economists have long been aware the value of a unified paradigm is the integration and accumulation of a body of knowledge. This integration also serves a very practical purpose. As Peter Senge (1990) suggests:

This is why systems thinking is the fifth discipline. It is the discipline that integrates the disciplines, fusing them into a coherent body of theory and practice. It keeps them from being separate gimmicks or the latest organization change fads. Without a systemic orientation, there is no motivation to look at how the disciplines interrelate. By enhancing each of the other disciplines, it continually reminds us that the whole can exceed the sum of its parts For example, vision without systems thinking ends up painting lovely pictures of the future with no deep understanding of the forces that must be mastered to move from here to there. (p. 12)

Whether or not students of strategy aspire to normative or explanatory completeness, they would do well to return to their mooring in systems thinking to begin the quest in earnest.

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MULTIPLE STAGES OF ORGANIZATIONAL IDEOLOGY: LOYALTY, VALUES, AND COMMITMENT

Albert S. King*

This study defines and measures a multiphase model of organization ideology in a large thermoplastics manufacturing firm. The utility of the progressive phases is demonstrated by their capability for discriminating with 23 variables the propensity to affective organization commitment and to distinguish regular variation on a continuum of 16 variables widely used to evaluate the quality of work organization. The analysis supports the notion of a stepwise movement from loyalty to value congruence to perceived commitment in strengthening ideological attraction to organization, and demonstrates concurrent validity of progressive phases associated with perceived quality of work organization. Although the levels and phases are progressively prepotent and valenced in predicting employee attraction to organization and commitment, different patterns and paths through the phases for individuals are indicated. At a structural level, results shed insight into ideology formation and affective organizational commitment.

Commitment to organizational ideology has attracted much rekindled attention, and for intriguing, compelling reasons (Schein, 1991; Tracy, 1993). Ideological forces of loyalty, value congruence, and affective organizational commitment represent core components for cooperation in an organization, and for cohesiveness and consensus. Personnel pull together for the common purpose in a strong ideological organization where the unique attractiveness of its rich culture bonds members tightly and commits them individually and organizationally to identify with its rules, rewards, and values (Katz and Kahn, 1978).

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This paper reports findings of a study designed to test a hypothesized linkage between generalized values of loyalty, organizational value congruency, and affective organizational commitment. Based on the notion that an individual's behavior is determined primarily by past experiences and extending the analogy of individual development to that of organizational development, this paper discusses a series of developmental stages through which employees tend to pass in becoming "ideologically committed." But first, some overview and perspective on organizational ideology and the advantages of cooperation is provided.

IDEOLOGY AND COMMITMENT: BENEFITS OF COOPERATION

The important source of an organization's ideology appears to be from within the intrinsically shared loyalties, values, and expectations of the organization itself—where members are encouraged to turn inward and take initiatives from the imperatives of the organization's own vision. Instead of gazing outward to copy what other organizations are doing, members of the strong ideology organization receive their impetus for action not from admiring comparable organizations, but from emulating their own discoveries in fulfilling particular internal needs (Mintzberg, 1989).

As a resource, ideology creates a centripetal force inward, protecting the organization from outside influence, and drawing human resources toward countless acts of cooperation with each other. In this sense—by socially indoctrinating individuals into its norms and values—ideology may best be regarded as the central ethos of an organization, indeed the life-giving force or spirit that informs the formal framework of its fundamental function (Miller, 1978).

An important application appears to be that internalization of an ideology renders any particular organization more effective (Meyer, 1989). The concept continues to be of enduring interest to managers and

organizations because of its connection to increased performance and motivation, lowered absence and turnover, and heightened stability, satisfaction, and involvement (Porter, et al., 1974, 1976; Weiner and Vardi, 1990). Personnel get "juiced-up" to pursue the focus, structure, style, controls, rewards or whatever else drives and determines the direction of the organization. The infusion of an organizational ideology can alter even the most bureaucratic structure's nature. It is the nature of the human commitment to customer responsiveness and sensitivity to employee and stakeholder needs that really counts (Peters and Waterman, 1982; Tracy, 1989).

Another important implementation arises from using ideology to resolve contradictory competing claims between people and departmental units, and to reconcile discrepant conflicts arising within individuals themselves (Reichers, 1986). At the organizational level, institutionalized ideology helps forces and functions that diametrically dominate or oppose each other to pull together, work through differences, and facilitate adaptation and change. Strong organizations solidify when threatened and when they have to because they are deeply seated in strong systems of beliefs (Kahn, et al., 1964; Meyer, 1987). Such organizations readily reconcile conflicting interests and suspend debilitating rivalries, since what matters is the organization itself, not any of its "special" parts. When people believe in the organization over and above any of its specialized parts, the organization is substantially empowered to adapt.

This dynamic is not construed to imply that the zero-sum rule is supported and the "more-less" hypothesis holds—that if an organization favors one particular function, others may fail; or if the organization is favored above all else, then individuals suffer. This may happen in a weak ideology organization where functions and outcomes are managed merely as aggregations of different parts; and people are treated as means to an end, rather than an end in itself. But when the strong force of ideology genuinely infuses an organization structure and a bone-deep belief in doing the right things for people authentically prevails, an organization takes on

an institutional life and logical dynamic of its own and conflicts are reconciled.

"At the organizational level, institutionalized ideology helps forces and functions that diametrically dominate or oppose each other to pull together, work through differences, and facilitate adaptation and change."

That is what the concept of strong ideology leading to organizational commitment really conveys. Regardless of what function an individual or unit performs, each is treated as an embodiment of the total system and each is empowered to make decisions and take actions for the good of the whole. For example, it is not just the salesforce that is responsible for revenue, nor the production members for controlling costs and efficiency. A "hands on, value driven" or all hands approach compels everyone to internalize many forces in carrying out his or her own duties. Reiterating a metaphorical epigram, "It is easy to change hats when all are emblazoned with the same insignia (Mintzberg, 1989)." Thus far, organization aspects of commitment have been subordinated to analysis of individual propensities (Hrebiniak and Alluto, 1972; Brown, 1969; Dubin, Champois and Porter, 1975; Kidron, 1978), but that emphasis is being shifted. Consider three studies of an emerging agenda. Buchanan (1974) and Jamal (1974) conceptualized level of integration in organization development in terms of positive association with organizational commitment. O'Reilly and Chatman; and Allen and Meyer (1990) used an organization setting to illustrate how congruency of individual and organization values leads to mutually rewarding relationships reducing the possibility of conflict. Finally, Weiner (1982, 1994) specified a model of internalized normative

beliefs and level of value congruency leading to organizational commitment that is independent of rewards or punishment.

TOWARD A PROGRESSIVE PHASE MODEL OF IDEOLOGY AND COMMITMENT

The model of ideology formation extends historical work (March and Simon, 1958; McGregor, 1967; Hall, 1970; Porter, et al., 1974, 1976; Morris and Koch, 1979). Empirical studies (Weiner, 1982; O'Reilly and Chatman, 1986; Meyer and Allen, 1987; Allen and Meyer, 1990; Mowday, Steers, and Porter, 1979) separately tested for relationships of each of the three subscales with a wide range of individual and organizational outcomes. This study makes an additional use of the essential factors. It attributes differential prepotency and attraction to the propensity to commitment, uses norms from the employee population to distinguish high vs. low propensity on each subscale, and then defines stages of organizational commitment and ideology formation in terms of possible high vs. low combinations of scores on the three factors.

Stated simply, the model seeks to show an underlying pattern between loyalty, value congruence, and affective commitment in establishing the stronger construct of organizational ideology. In terms of prepotency, loyalty precedes value congruence which precedes affective commitment. Stronger combinations of these three dimensions, in turn co-respond to successively higher states (or stages) of attraction to organization ideology.

PSYCHOSOCIAL STAGES OF COMMITMENT

The current study adds to structural aspects on the psychology of commitment, setting forth the usefulness of a stage model. In a preliminary study, these phases varied systematically with commonly used measures of the quality of work organization (Bateman, 1984; Allen, 1990). Results indicate that ideology formations can be measured in large

populations—easily and reliably. This compact analysis augments the anecdotal and judgmental focus of much of the available literature, and permits rigorous tests of it (Mowday, Porter, and Steers, 1982).

The present study included over 1,600 respondents and involved employees of a large thermoplastics manufacturing firm focusing on a cross section of lower organizational levels and narrow range of jobs (logistics, production, maintenance, and service) at dispersed locations nationwide. In several ways, the study was designed to test the stability of the pattern of correspondence of ideological forces with organizational variables. Attention was directed toward: (1) identifying characteristics of the workforce, (2) analyzing three dimensions regarded as sequential linkages to ideology formation, (3) defining successive stages of ideology, and (4) testing staged combinations of the dimensions with factors often used to evaluate the quality of work organization.

BACKGROUND OF STUDY

Employee respondents for the study came from several functional areas and include four job classifications in a large (20,000 employees) Fortune 500 thermoplastics manufacturing firm with ten locations nationwide. The corporation provides eighty percent of its products and services to commercial and industrial customers under dynamic market conditions that can be competitively challenging and rewarding. The four job classes included:

- Production workers (equally skilled, semiskilled, and unskilled) constituting 65 percent of the total responding population.
- A cadre of logistics employees from one of the established position specializations (raw materials handling, supply and storage, transportation and shipment, distribution scheduling, and tools maintenance), constituting 15 percent.

- Maintenance personnel (generally at equipment repairs, tools, supplies, and materials tasks) constituting 10 percent of the population.
- Service employees in contact with suppliers, customers, contract agencies, production, maintenance, and operative personnel comprising 10 percent of the respondents.

With corporate human resources and plant management support, the organizational workforce of the fabrication and assembly group of the firm provided voluntary responses to a survey instrument covering varying aspects of employee worklife. These aspects, identified as "covariants of ideology and commitment" included a set of sixteen variables to evaluate worksite quality. While these were intended to focus on the organization as a whole, analysis from the 23-item questionnaire at the end of this article was used to demonstrate that the sample was representative of a phase model. The total population was 3,200, located at 20 sites nationwide, with plant manufacturing and assembly units having similar (not identical) production, scheduling, and cost containment roles. Although total N varied somewhat for different purposes due to item-wise adjustments made for missing data, N was never less than 1,600 for any analysis. The response rate averaged 50 percent, and comparisons of conventional demographics—age, sex, race, and so on—revealed that the responding workforce sample made up a reasonable analog of the total population. For example, women were only slightly (and nonsignificantly) under-represented in the responding sample containing 36.5% women and 63.5% men corresponding to total organizational percentages of 37.4 and 62.6, respectively. In all other demographics, the respondent to total population comparisons reflected similar closeness of fit.

DIMENSIONS OF IDEOLOGY

To assess employees' attachment to organization goals and values and the formation of ideology within the overall organization context, the instrument included 23 items, which tap three subscales:

1. Loyalty, high scores on which distinguish individuals who tend to be predisposed to internalize normative pressure and to be committed to institutions (family, friends, country, and work organization) as a result of primary socialization with a culture that places a premium on loyalty and duty to institutions and organization authority (Weiner, 1982). This generalized value resulting from an internalized normative pressure forces an individual to consider commitment to an employer organization as a moral obligation.
2. Value congruency, high scores on which indicate respondents who see their own and the organization's values as sufficiently related or similar that the possibility exists for a mutually rewarding employment relationship (Allen and Meyer, 1990). In this case, the individual, because of selection or socialization, finds it natural to identify with and commit to an organization.
3. Affective organizational commitment, (attitudinally related) high scores on which come from individuals who attach to the organization's goals and values, and to the organization for its own sake, apart from its purely instrumental work (Buchanan, 1974; Weiner, 1982). This is represented as an inherent willingness of individuals to identify with the organization and make personal sacrifice, perform beyond normal expectations, work selflessly and contribute to its effectiveness, to endure difficult times, and not desire to leave the organization for self interest or personal gain.

Rather than being an explanatory study that generates its own items, the survey instrument was adapted from Weiner (1982) for loyalty, Allen and Meyer (1990) for value congruence, and from Buchanan (1974) regarding

commitment. Survey respondents received simple instructions: "Write one number in the blank to the left of each statement indicating the extent you agree or disagree with each statement."

Very Much Disagree 1 2 3 4 5 6 7 Very Much Agree

Low numbers describe
statements with which
you disagree.

High numbers describe
statements with which
you agree.

Factor analysis of the 23 items (using principal components methodology with orthogonal rotation) is shown in Table 1, along with item numbers on the survey to reflect how subscale items are interspersed on the instrument. Table 2 shows item, subscale, and total alpha reliabilities. Information in these two tables suggest the usefulness of three factors—loyalty, value congruence, and affective organization commitment—with acceptable reliabilities accounting for total intercorrelation in the data. The variable correlations of items with subscale scores (right column of Table 2) suggest a major collective contribution of the three batches of items to the subscales.

Factor I (affective commitment) is loaded by four items from other subscales, but the other two factors (value congruence and loyalty) get loaded $\geq .30$ only by items classified a priori within their respective subscale classification. The communalities, H^2 , in Table 1 reflect the amount of each item's variance included in the factor analysis.

As the factor analysis suggests, the three subscales have moderate correlations, thus:

	<u>Loyalty</u>	<u>Value Congruence</u>	<u>Affective Commitment</u>
Loyalty	1.0	.29	.54
Value Congruence		1.0	.28
Affective Commitment			1.0

This pattern of correlations suggest that the three subscales make relatively independent contributions to defining the content of the psychology of attraction to ideological organization commitment.

Moreover, the model asserts a theoretical imperative that higher states of attraction to organization ideology and commitment—which some observers, e.g., Mintzberg (1989), label "missionary"—derive from and transcend the dimensions of loyalty, value congruence, and affective organizational commitment. A critical hypothesis is that the three dimensions of ideology are indeed dimensions of a greater construct. To test this hypothesis, scores for respondents on all three dimensions were totalled and correlated with overall items. Results of factor analyzing all 23 items (forced) on only one scale "missionary ideology" on overall attraction to organization ideology revealed an assuring pattern:

	<u>Loyalty</u>	<u>Value Congruence</u>	<u>Affective Commitment</u>
Missionary Ideology:			
Overall Attraction	.34	.38	.51

DIFFERENTIAL PREPOTENCY AND VALENCE

The contributors to phases of attraction to organization ideology can be described as ranging in prepotency from loyalty to value congruency to organizational commitment; and increasing in valence (need strength toward commitment) from low to high involvement which correspond to an increasing organization commitment. Increases in loyalty represent the most commonly prepotent and least valenced initiators of the process. Indeed, some degree of loyalty—as in "should be willing to support their government's policies" or "should willingly support and defend friend and family members" seems useful for effective performance in many occupations. Beyond a point, however, indigenous loyalty, as a

generalized sense of moral obligation, augments the possibility of a mutually rewarding relationship (congruency) and feelings of identity and inspiration (commitment). Of substantial interest is the proposition that preentry loyalty coupled with sufficiently related or similar values become magnified by processes of organizational socialization, and so facilitate organizational identification, which in combination, lead to organization commitment.

"[P]reentry loyalty coupled with sufficiently related or similar values become magnified by processes of organizational socialization, and so facilitate organizational identification, which in combination, lead to organization commitment."

Perhaps the classic case involves the skilled craftsperson assigned to a challenging position in a job class appropriate to previous trades training and requiring high participation. In episodic, regularly recurring contacts with similarly trained co-workers and supervisors, certain attitudes and beliefs appear increasingly common—an awareness of values that are embracing and enduring, involvement in a wide variety of tasks, distinct identity of members, significant purposes, familiarity with work outcomes, and so on. With continued traditions and precedents, an increasing concern and satisfaction about shared goals and the ability to be a part of something highly important occurs. With repeated enactments of reinforcing meaningfulness, responsibility and knowledge of job results, socializing features build momenta for consensus and underlying value congruence. As loyalty and value congruence mount beyond a point, so can pressures result in a cathexis surpassing an individual's normal "zone

of acceptance" limit and generate the inducement surplus implied by the bone deep belief of commitment.

It is not intended to indicate there is one pathway to commitment, but rather to suggest why differences in valence occur. While ordering the phases in terms of increased valence, the proposed model does not require that all individuals go through exactly the same phases. The phases represent progressively valenced effects, with a variety of specific pathways (for individuals) leading to organizational ideology and commitment.

Percentile rankings derived from the three sets of subscale scores from the employee population of over 1,600 provided an empirically based estimate of high vs. low. The distribution of raw scores by percentiles yielded three cutting-points for high scores, or those greater than the median: 20 for loyalty, 28 for value congruence, and 24 for affective commitment. The median percentile rankings were not taken simply to establish convenient cut-off points. Identification and development of these cut-offs were adopted from the examination for construct validity taken from Vaserhelyi (1977). Using these cut-offs, an 8-phase model of progressive organization ideology was generated. High scores on organization commitment are considered most highly valenced; high scores on value congruence are more valenced than high scores on loyalty. Basically, these cut-offs provide a ready interpretation for why employees can easily become indoctrinated and often become dedicated to a degree approaching complete commitment. Low to moderate loyalty will lead only to indifferent compliance, without strong need to collaborate with others. Heightened loyalty, however, will result in increased sense of identity with goals and value congruence leading in turn to higher degrees of commitment implying surpluses beyond those associated with mere dependable role compliance. The focus on phases derives from the high vs. low distinctions on three propensities to organization commitment subscales; that is, eight combinations logically emerge from three subscales, each distinguished as two (high vs. low) categories. Table 3

defines the phases in terms of this analysis and shows the distribution of assignments in the current study employee population.

COVARIANTS OF IDEOLOGY AND COMMITMENT PHASES

Judging from the literature on ideological organization, its covariants include a broad and enriched range of characteristics (Mintzberg, 1989). To illustrate, Schein (1991) associated formation of ideology and "strong culture" with a substantial catalog of effects which favorably compliment improvements in the quality of work life or commitment by those experiencing strong attraction to organization ideology: higher productivity and performance, increased motivation and morale, reduced absenteeism and turnover, along with various self-reported indices of cooperation, including security, initiative, unambivalence, involvement, proaction, and affection. This central characterization suggests a convenient test of the progressive valence of the phases. Consequently, the quality of work life should co-vary regularly with the phases of valence (attraction to ideology), if those phases represent conditions of increasingly ideological commitment. To assess such concurrent validity, a three-stage effort was made to: (1) identify a set of variables commonly used to evaluate worksite quality, (2) extrapolate predictions concerning the expected relationships of these variables with phases of commitment, and (3) test these likely covariants to see if the phases of commitment "map" on them in expected ways.

Covariants were comprised of seven assorted measures, of which the first six should increase as ideological attraction or commitment progresses through the several phases:

Trust in supervision (Roberts and O'Reilly, 1974).

Trust in employment practices (constructed for present study).

Job involvement (White and Ruh, 1973).

Participation in decisions regarding work (White and Ruh, 1973).

Willingness to disagree with supervisor (Patchen, 1965).

Job Diagnostic Survey (JDS), which measures satisfaction with ten facets of work (Hackman and Oldham, 1980) all of which should increase as ideological attraction to organizational commitment increases. Facets of satisfaction include:

- | | |
|----------------------------|------------------------|
| 1. Meaningfulness of work | 6. Growth satisfaction |
| 2. Responsibility for work | 7. Job security |
| 3. Knowledge of results | 8. Compensation |
| 4. General satisfaction | 9. Co-workers |
| 5. Work motivation | 10. Supervision |

Job tension, an additional scale which should decrease with advancing phases (Kahn, et al., 1965).

Table 4 shows analysis of these results with an average alpha approximating .80 with reliability coefficients for only two of the 16 variables falling below .70 (responsibility for work and work motivation). The conceptual frameworks underlying the assorted scales are general and substantiated by considerably convincing justification (Hackman and Oldham, 1980). Consider, for example, job tension, which taps several important classes of alienation or dissatisfaction—e.g., those related to role conflict and ambiguity—that impact on organization commitment phases, more or less directly.

Data from the workforce population permitted testing for the covariants of progressive phases of commitment and the results appearing in Tables 4-6 support the general usefulness of the phase model. On balance, about 17 percent of the variance in commitment phases by worksite descriptors is explained. For comparative purposes, simple correlations were run between worksite descriptors and four phase model scores—the three subscale scores and phase model total. On average, these 64 correlations

explain 12 percent of the variance and this result reinforces the usefulness of the phase approach, which at once derives from the three subscales and yet transcends them. Phases I and VIII have the lowest and highest scores on the subscales, but the six interior phases have total scores that do not vary directly with the phases. Tables 4 and 5 showing paired comparisons of variables by phases support the overall summary that phase by phase, analyses of all possible comparisons indicate that: (1) over 90 percent of the differences (404/448) are in the expected directions, (2) over 55 percent of the expected differences (248/448) attain statistical significance, and (3) only 2 differences of 448 are in an unexpected direction and statistically significant. The paired comparisons utilized the least difference test, modified for unequal subpopulations. A conclusion flows easily—phases of commitment reflect regular and robust co-variation with the panel of descriptive reports about the character and quality of worksites.

Additionally, the data suggest most or all the phases discretely map significant differences on target variables. Of course, the significant paired comparisons suggest this conclusion, but focusing on "distance" between phases highlights the point. Thus, Phases I vs. II, II vs. III, and so on, may be considered a distance of +1; Phases I and III, III and V, and so on, are +2; etc. Large proportions of expected and statistically significant differences shown in Table 6 are evenly distributed among seven possible "distances" which support the utility of the full 8-phase model.

These data demonstrate that adjacent as well as distant phases tend to map discrete segments of the ranges of target variables. This holds most clearly for the five most distant pairs of phases, where over three-fourths of the paired differences are in the expected direction and attain statistical significance. Moreover, even distances of +2 and +1 generate 41 to 20 percent records in this regard. This suggests that even very close neighbors reflect substantial discriminatory power of the phases, given that a record of one in five statistically significant pairs conventionally signals noteworthy covariation.

"[I]t is pure folly to assume that ideology-forming attitudes are based simply on expected economic gains; much deeper values are at stake."

In sum, data in Table 6 significantly demonstrate the usefulness of all the phases. Phases I and VIII reflect the lowest and highest total scores and hence, +7 results can be interpreted as a total score effect. But phases of more proximate distance can have significantly different total scores and map on target variables in quite regular and robust ways.

Finally, the 16 target variables do not merely measure the same domain multiple ways. Varimax rotation factor analysis in Table 7 reveals three domains which are provisionally labelled. One factor accounts for over 45 percent of the common variance to which the other two factors add some 16 percent. Cross loadings in the factors exist, but the convention of reporting only loadings $\geq .35$ highlights some differentiating tendencies. The first two factors suggest high energy and the second factor seems distinguished by its focus on supervisory versus peer level, as well as by lesser emphasis on job contributors to satisfaction. Moreover, the third factor seems characterized by low energy and peer defensiveness. This multidimensionality of the target variables reinforces the pattern of covariation discussed above, although not robustly.

CONCLUSION: PROGRAMMATIC RESEARCH DIRECTIONS

These results support four future initiatives. First, the data reveal a regular and robust covariation between the commitment phases and 16 common indicators of the quality of working sites. This clearly supports

the usefulness of the phase approach, but the search for covariants should be extended to nonreactive and unobtrusive measures of individual and organizational behaviors.

Second, the incidence of commitment phases among an organizational workforce requires attention for both human resource and cultural socialization reasons, the former if only because screening and selection surveys for workers' training and aptitude potential due to values orientation (before undertaking expensive staffing programs) is *de rigueur*. Consider data from two organizations: The present focal study firm, (A), which is generally considered a moderately favorable place to work and a voluntary nurses association health services concern, (B), that is in most respects thoroughly modern, considered highly missionary, and human resources-oriented. Even the "missionary" organization faces a substantial challenge, to judge from the following distribution of employees by phases of commitment:

PHASES OF ASSIGNMENTS BY PERCENTAGES

Organization	I	II	III	IV	V	VI	VII	VIII
A	22.3	7.3	12.6	8.4	7.3	11.5	7.4	23.2
B	10.9	10.6	7.7	4.7	13.9	9.1	7.3	35.8

Third, more information is needed about the locus of commitment and its connection to ideology formation. The evidence, far from conclusive, suggests that most of the variance in commitment is accounted for by properties of precedent, tradition, and reinforcements of the immediate work unit and not by the overall organization or original mission itself (Ouchi, 1980; Meyer, 1989).

Fourth, there may well be several types of commitment, even if features of the immediate work group and its style of control prove dominant.

Progressively *evoked* seems to describe the dominant type of attraction to ideology measured by the phases, given not only the strong associations with worksite descriptors, but also taking into account the substantial persistence of phase assignments observed in the pilot study and over a year's interval. But, precipitous, or *natural* proclivities also no doubt exist and advanced and heightened bonding with ideology might be induced by sudden critical identity enhancing events.

"Successful corporate strategies are almost invariably guided by powerful corporate visions and realistic assessments of the company's commitment and capability to attain them."

This core notion might develop in several ways. Although available data imply that Phase I-VIII can be considered progressively valenced, for example, this does not imply that a phase-by-phase entrance to, or exit from, advanced commitment always occurs. Powerful internalization might induce an acute "natural" progression of phases: I→VI→VIII, for example. One also can envision a basic pathway for "evoked" commitment due to gradually accumulating and indoctrinating involvement at work: I→II→IV→VII→VIII.

Finally, it is pure folly to assume that ideology-forming attitudes are based simply on expected economic gains; much deeper values are at stake:

When the informal processes of socialization tend to function naturally; perhaps reinforced by more formal programs of indoctrination, then the ideology would seem to be strong. But when

the organization is forced to rely almost exclusively on forms of calculated identification, then its ideology would appear to be weakening, if not absent to begin with (Mintzberg, 1989).

This conclusion that deeper values than money are at stake best illustrates how combinations of affecting factors of loyalty and shared values among employee members echoes the same sentiment: The perceived instrumentality of participation, involvement, and commitment to organization ideology truly promises that workers will understand the company's mission, philosophy, and policy and will be able to deduce or derive for themselves the proper objective for any conceivable situation.

For strategy consultants, employees' belief that intervention will yield positive rather than negative outcomes for them allows planners to predict, with incredibly high accuracy, the readiness and receptivity of organizations to new initiatives in organization change. In a sense, organization commitment works like the basic postulates of an axiomatic system. They are the fundamental assumptions on which reasoning and sense making are logically derived, but in themselves are not logical. The real test of their worth is not their reasoning or logic, but the usefulness of the thinking and action that ensues. In strong cultures, everyone knows the importance of shared values and compelling commitment. It is the ideological drive for accomplishment pulling the organization together; providing continuity in what would otherwise be an autochthonous field of organization dynamics.

This line of research suggests, however, that strong cultures of commitment are not to be found in many, or even most organizations. And, while earlier studies (Ouchi, 1978) have shown they are evident in most of the superior performers, all is not rosy in the world of culture either. As one observer has exclaimed, "A corporation doesn't have a culture. A corporation is a culture. That's why they're so horribly difficult to change" (Kiechel, 1984). In established organizations, ideologies are difficult to build and sustain, and can sometimes get in the way of organization effectiveness. Whereas strong cultures promote

change within themselves and become immutable, by forcing everyone to act within the same set of circumscribed beliefs, they themselves are not to be changed. Commitment thus becomes an obstacle to change, and the very ideology of loyalty, value congruence, and positive affect that makes an organization so adaptive within its culture undermines its efforts to move to a new context.

The phase model approach to assessing processes of commitment formation promises to provide a useful organon or model for further understanding just how ideological values serving to reconcile contradictory forces and promote change can paradoxically discourage, or even destroy it. The phase-wise analysis suggests that effective ideologies are generated gradually and incrementally by patient, deeply committed leaders capable of establishing compelling missions for their organizations, and managing the paradoxes inherent in them. The phase model also suggests a call for vision in managing organization mission. Successful corporate strategies are almost invariably guided by powerful corporate visions and realistic assessments of the company's commitment and capability to attain them. Establishing this vision imposes great demands on leadership, but meeting the demands can produce a corporate renaissance. Paradoxically, the more people understand about ideological limits of commitment, the more they seem to expand the limits of ideology. Such has certainly occurred in some organizations adopting the notion "There is absolutely no limit to quality" as their credo. Such an expansion may provide the most effective way for a company to sustain itself and prosper in the future.

MANAGER APPLICATIONS: INTERVENTION STRATEGIES

Several active, organizational, and self-help strategies should be proposed to facilitate employee attraction to organization. If management wants to make ideology more attractive to employees, it must consider making work conditions more satisfying. Management and the personnel department can enhance the progressive level of attraction by: (1) self-

analysis and evaluation of commitment level; (2) greater participation, involvement, and commitment in selecting and achieving work goals; (3) originating and reinforcing positive work attitudes; (4) maintaining a "sense-making" morality of work and organizational culture; (5) providing realistic communications that create expectations that will be fulfilled; (6) designing jobs with variety, identity, significance, autonomy, and feedback which fully utilize and develop skills, knowledge, and abilities of employees; (7) structuring the social psychology of organization culture and work roles to satisfy employee personalities, interests, and preferences; (8) facilitating and effecting personnel actions that tell employees management's priority to operate through and with employees, and that the organization is committed to treating employees with trust, open-mindedness, confidence, and respect; and (9) developing leadership, motivation, and communication encouraging Pygmalion-like practices of supervision (Hackman, 1980; Roberts, 1974).

Employees sometimes respond to disloyalty and lack of shared values with both upper managers and supervisors by neurotic behavior. They decide, in effect, that as long as they are going to be alienated and estranged in their disaffected work roles, they might as well withdraw and apathetically blame others for their indifference. Unfortunately, passive withdrawal does not treat propensity toward ideology adequately. Quite the opposite; one successful mode of intervention requires that employees selectively interact and spend more quality time with key supervisors and fellow employees to become aware of problems and cope with feelings (Rand, 1980).

Another effective strategy for heightening ideology attraction among employees is developing a social support system. Social support is defined as "the degree to which a person's basic social needs are gratified through unconditional acceptance by a group and belongingness with others" (Kaplan, 1987). An employee social support system serves several specific functions. These include having co-workers available to: (1) listen actively to problems; (2) provide rewarding appreciation for skills and abilities; (3) serve as a basis for continuing socialization and education;

(4) provide emotional support as well as a knowledgeable referent; and (5) facilitate testing social organization reality (Guzzo, 1985; Gorlin, 1984).

Whether in solo, assembly, or group/project operations, it is relatively easy for employees to become socially isolated. This can lead to the individual employee feeling alone with his or her work problems. It cannot be over-emphasized that employees must learn to extend help to each other and to be more socially supportive of their fellow co-workers (Pascale, 1988).

One advantage should be suggested to organizations seeking to increase commitment momentum through a social support mechanism. If a number of employees are experiencing strong satisfaction and fulfillment at the same time, they may reinforce their positive attitudes and behaviors. The net effect would be to increase the intensity of attraction for those involved (Schuler, 1982). Research findings extol the virtues of employees sharing and reinforcing their collective recognition and achievement by exchanging unremitting "tales of triumph and prophecies of promise!" (Jackson, 1987).

Finally, it appears that the intensity of a "reengineering" campaign (and such campaigns are increasingly popular) does not sway employee predispositions or loyalty preferences one way or the other. Since employees' attitudes toward their jobs and organizations in general are quite stable and well formed, their opinions tend not to be influenced much by campaign slogans and "quick-fix" tactics (Getman, Goldberg, and Herman, 1986). Managers may simply fail to recognize the signs and symptoms of serious loyalty and value congruence problems early enough to make the appropriate form of intervention needed (Kotlowitz, 1987; Janus, 1982). The following symptoms are considered significant: (1) disaffection; (2) powerlessness; (3) meaninglessness; (4) normlessness; (5) social isolation; (6) value isolation; (7) self and/or work group estrangement; (8) disciplinary and grievance difficulties; (9) blaming others; (10) subgoal formation; (11) lack of awareness of real common problems; (12) acting contrary to data, information, and company policies

and actions; (13) displaying extreme displeasure with trifling circumstances; and (14) behaving differently outside of work organization. Organizational diagnosis and action interventions should not be confused with unfair practices of interference. Although employers cannot directly ask employees what they think and feel about organization vs. other central life interests (e.g., family or union), they can ask how satisfied they are with work and other conditions; and how much "say so" they have in confronting important problems (Kochan, 1979; Patchen, 1965).

"Whether in solo, assembly, or group/project operations, it is relatively easy for employees to become socially isolated."

SUMMARY CONCEPT

Patterns of attraction toward ideology and commitment are perhaps more common than generally accepted at the organizational level. Fortunately, the effects are very discernible and real. This approach has emphasized adapting a survey inventory for the employee work role to facilitate recognition of early signs of the attraction to affective organization commitment profile as a special subset of the formation of strong organization ideology. Utilizing this knowledge, it is hoped that individual managers in human resource programs will find it easier to develop strategies to examine and monitor this evolutionary phased and progressively patterned linkage impacting the quality of work organization.

The method presented is a tool that will permit Human Resource managers and professionals to make first order assessments of quality of work life to discover which personnel and/or jobs are most strongly bonded

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to the organization and which are the most likely candidates for intervention and revitalization. It is a tool that managers will find familiar in general design, for it is squarely based on individual self-analysis and intuitive processes that ultimately are among the most critical to human resource effectiveness. It is intended that articulation and self-discovery of the subtle human ways in which employees have unconsciously become socialized into the organization culture will make a mystifying situation not magical, but manageable and improvable.

TABLE 1
FACTOR STRUCTURE FOR IDEOLOGY FORMATION

(N = 1,639; Items = 23)

Subscale Items	I	Rotated Factor*		H ²
		II	III	
A. Organizational Commitment				
1. Effort Beyond Expected	.78			.62
2. Talk Up Organization	.81			.63
3. Accept Any Assignment	.84			.72
9. Inspires Best Performance	.63			.45
14. Chosen Organization	.58			.45
15. Care About Fate	.46			.24
21. Best Possible Organization	.64			.48
B. Value Congruence				
5. Values In Agreement		.39		.20
8. Personally Approve Way		.51		.29
10. Cares About Safety and Quality		.45		.22
13. Safe and Comfortable Work		.54		.44
18. Honesty With Employees/Public	.39	.46		.39
19. Concern For Environment		.51		.35
20. Respects Rights and Dignity		.55		.44
22. Organization is Fair		.54		.33
C. Loyalty				
4. Loyalty to Friends and Family			.45	.22
6. Willing to Sacrifice			.58	.39
7. Loyalty to Country	.34		.41	.31
11. Willing to Support Government			.58	.41
12. Sacrifice for Sake of Company	.48		.34	.37
16. Loyalty to Employer	.61		.35	.47
17. Never Criticize Policies			.33	.19
23. Make Financial Sacrifice			.31	.22
Eigen Value	5.9	2.4	1.7	
% Common Variance	25.6	10.4	7.4	
% Cumulative Variance	25.6	36.0	43.4	

*Show only loading > .30

TABLE 2
RELIABILITIES OF SUBSCALES AND TOTAL SCORES

Ideology Formation Subscale Items	Subscale Alpha Coefficient	Item Alpha Coefficient	Item/Subscale Correlation Corrected
A. Organization Commitment	.85		
1. Effort Beyond Expected		.86	.71
2. Talk Up Organization		.82	.68
3. Accept Any Assignment		.83	.61
9. Inspires Best Performance		.81	.77
14. Chosen Organization		.80	.64
15. Care About Fate		.85	.60
21. Best Possible Organization		.83	.69
B. Value Congruence	.75		
5. Values in Agreement		.74	.34
8. Personally Approve Way		.69	.47
10. Cares About Safety and Quality		.70	.35
13. Safe and Comfortable Work		.69	.49
18. Honest With Employees and Public		.69	.40
19. Concern for Environment		.71	.43
20. Respect Rights and Dignity		.69	.45
22. Organization is Fair		.70	.38
C. Loyalty	.73		
4. Loyalty to Friends and Family		.71	.34
6. Willing to Sacrifice		.69	.47
7. Loyalty to Country		.67	.45
11. Willing to Support Government		.66	.47
12. Sacrifice for Sake of Company		.70	.54
16. Loyalty to Employer		.71	.50
17. Never Criticize Policies		.68	.29
23. Make Financial Sacrifice		.68	.27
D. TOTAL			
Ideology Score	.85		

TABLE 3
HIGH VS. LOW ATTRACTION TO IDEOLOGY
TO DEFINE PHASES OF COMMITMENT

<u>Ideology Subscales</u>	<u>Phases of Commitment</u>							
	I	II	III	IV	V	VI	VII	VIII
Prepotency								
Loyalty	Lo	Hi	Lo	Hi	Lo	Hi	Lo	Hi
Value Congruence	Lo	Lo	Hi	Hi	Lo	Lo	Hi	Hi
Commitment	Lo	Lo	Lo	Lo	Hi	Hi	Hi	Hi
Assignments (N = 1,639)	Low 365	120	206	Valence 137	120	189	High 122	380

Interpretation

Prepotency ranges from Loyalty to Value Congruence to Affective Organization Commitment.

Valence ascends from Phase I (Low) to Phase VIII (High) for stages provisionally defined as:

<u>Phase</u>	<u>Meaning</u>
I	Awareness
II	Concern
III	Experimentation
IV	Options
V	Partial Acceptance
VI	Momento
VII	Convergence
VIII	Affective Reinforcement

TABLE 4

**COVARIATION OF PHASES OF IDEOLOGY AND
TARGET VARIABLES VIA ONE-WAY ANALYSIS OF VARIANCE**

PROGRESSIVE PHASES OF COMMITMENT

	I LoLoLo	II HiLoLo	III LoHiLo	IV HiHiLo	V LoLoHi	VI LoHiHi	VII LoHiHi	VIII HiHiHi	F- Ratio	F- Probability
ASSORTED SCALES										
Alpha Scores	(365)	(120)	(206)	(137)	(120)	(189)	(122)	(380)		
Participation	.78	13.0	13.5	16.2	14.9	15.2	16.3	17.8	46.793	< .001
Job Involvement	.85	24.7	23.4	30.9	29.7	31.8	32.9	34.7	72.227	< .001
Trust in Supervision	.78	12.2	12.2	14.6	13.1	15.1	14.4	15.9	21.196	< .001
Trust in Employees	.78	14.7	15.0	17.4	17.0	17.6	17.8	19.6	32.726	< .001
Willingness to Disagree with Supervision	.79	14.9	15.3	16.4	14.6	13.7	15.6	14.6	2.996	< .01
Job Tension	.86	23.4	22.0	21.0	19.5	18.2	17.0	16.1	49.240	< .001
JOB DIAGNOSTIC SURVEY										
(JDS) SCALES										
Meaningfulness of Work	.81	16.4	17.7	20.1	19.4	20.9	21.4	23.2	64.940	< .001
Responsibility for Results	.67	29.0	30.3	33.6	32.1	33.4	34.6	36.4	51.462	< .001
Knowledge of Results	.71	18.9	20.3	21.2	20.4	21.9	21.5	23.0	32.840	< .001
General Satisfaction	.81	19.2	19.9	22.2	24.2	26.0	26.5	28.4	97.183	< .001
Internal Work Motivation	.67	29.9	31.1	32.9	31.9	33.2	33.7	35.7	37.987	< .001
Growth Satisfaction	.85	15.3	16.4	20.0	19.3	20.7	21.5	23.1	73.738	< .001
Satisfaction with Security	.77	8.6	9.1	9.7	10.3	10.7	10.9	11.5	21.085	< .001
Satisfaction with Compensation	.87	8.2	8.6	8.7	8.7	10.2	10.1	10.5	18.987	< .001
Satisfaction with Co-Workers	.76	13.9	15.5	17.6	15.9	17.9	18.0	18.8	76.314	< .001
Satisfaction with Supervision	.80	12.2	12.5	14.7	14.1	15.9	15.7	17.1	38.385	< .001

STATISTICAL SIGNIFICANCE OF PAIRED-COMPARISONS OF COMMITMENT PHASES X TARGET VARIABLES[†]

TX indicates a paired-comparison of differences on a variable that attains or surpasses the .05 level, based on the least significant test, as modified for unequal size of subpopulation.

TABLE 6

FOUR MEASURES OF COVARIATION OF TARGET VARIABLES, BY "DISTANCE" BETWEEN
PAIRS OF PHASES, PERCENT, AND ABSOLUTE NUMBER OF OBSERVATIONS (IN PARENTHESES)

	<u>Total in Percent</u>	<u>+7</u>	<u>+6</u>	<u>+5</u>	<u>+4</u>	<u>+3</u>	<u>+2</u>	<u>+1</u>
Expected Direction	90.2	94% (15/16)	97% (31/32)	96% (46/48)	98% (63/64)	95% (76/80)	90% (86/96)	78% (87/112)
Expected Direction and Statistical Significance	55.1	94% (15/16)	94% (30/32)	92% (44/48)	78% (50/64)	58% (46/80)	41% (39/96)	20% (23/112)
Unexpected Direction	9.4	6% (1/16)	3% (1/32)	2% (1/48)	3% (2/64)	5% (4/80)	9% (9/96)	21% (23/112)
Unexpected Direction and Statistical Significance	0.5	0%	0%	2% (1/48)	0%	0%	0%	1% (1/112)

TABLE 7

FACTORS IN PANEL OF 16 TARGET VARIABLES, BY VARIMAX ROTATION

FACTORS SUGGESTING DIFFERENCES IN WORKSITE DESCRIPTORS

	I. High Energy, Positive Job Factors, Peer-Oriented	II. High Trust, Supervisor-Oriented, Tension-Avoiding	III. Peer-Oriented, Restricted Upward Feedback	R ²
<u>Assorted Scales</u>				
Participation	.49	.48		.52
Job Involvement	.71			.63
Trust in Supervision		.79		.71
Trust in Employees	.40	.67		.62
Willingness to Disagree with Supervisor			-.36	.22
Job Tension		-.55		.43
<u>JDS Scales</u>				
Meaningfulness of Work	.83			.72
Responsibility for Results	.73			.60
Knowledge of Results	.42			.33
General Satisfaction	.75	.37		.72
Internal Work Motivation	.66			.48
Growth Satisfaction		.44		.76
Satisfaction with Security	.73	.43		.27
Satisfaction with Compensation		.45		.39
Satisfaction with Co-Workers	.67		.35	.56
Satisfaction with Supervision		.82		.77
<u>Eigen Value</u>	7.5	1.5	1.1	
Percent Common Variance	46.7	9.4	6.9	
Percent Cumulative Variance		56.1	63.0	

*Shows only loadings $\geq .35$

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SURVEY QUESTIONNAIRE

Write one number in the blank to the left of each statement indicating the extent you agree or disagree with each statement.

Very Much Disagree **1 2 3 4 5 6 7 Very Much Agree**

**Low numbers describe statements
with which you disagree.**

**High numbers describe
statements with which
you agree.**

-
- | | |
|-----------|---|
| _____ 1. | I am willing to put in a great deal of effort beyond the normally expected in order to help this organization be successful. |
| _____ 2. | I talk up this organization to my friends as a great organization to work for. |
| _____ 3. | I would accept almost any type of job assignment in order to keep working for this organization. |
| _____ 4. | A strong loyalty to friends and family is a person's most important obligation. |
| _____ 5. | I find my personal values to be in agreement with those of this company. |
| _____ 6. | A person should be willing to sacrifice for the benefit of friends and family members. |
| _____ 7. | A strong loyalty to country is one's most important obligation. |
| _____ 8. | I personally approve of the way this organization treats customers, always being truthful. |
| _____ 9. | This organization really inspires the very best in me in the way of job performance. |
| _____ 10. | I am impressed by how this organization cares about the safety and quality of its product and services. |
| _____ 11. | All citizens, regardless of race, ethnic origin, religious and political affiliation, should be willing to support their government policies without second guessing. |

- ___ 12. Employees should be willing to make personal sacrifice for the sake of their company if needed, giving up or rescheduling a vacation to meet work deadlines.
- ___ 13. I am satisfied with this organization to provide a safe and comfortable work environment for employees.
- ___ 14. I am extremely glad that I chose this organization to work for over others I was considering at the time I joined.
- ___ 15. I really care about the fate of this organization.
- ___ 16. A strong loyalty to one's employer is one of an employee's most important obligations.
- ___ 17. Employees should never publicly criticize the policies of their employer.
- ___ 18. I admire this organization's honesty in dealing with its employees and the public.
- ___ 19. I am impressed by this organization's concern for the environment.
- ___ 20. This organization respects and protects the rights and dignity of all employees.
- ___ 21. For me, this is the best of all possible organizations for which to work.
- ___ 22. This organization is fair and there is little more that I can ask for.
- ___ 23. Employees should be willing to make financial sacrifice, such as giving up pay increases for a given period of time for the sake of their company's survival.

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THE INTEGRATION OF HUMAN RESOURCES INTO TOTAL QUALITY MANAGEMENT

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The 1990s have seen the sudden emergence of information technology as a powerful domestic and international means of communication between competitive forces on a global scale. As a result of this, the implementation of Total Quality Management (TQM) has become a reality within many industries, both in the manufacturing and service sectors. However, in order for the philosophies of TQM to be effectively integrated, all constituents within an industry must be actively involved. This paper provides an overview of a plan that would contribute to the effective involvement of Human Resource Management (HRM) in the TQM plan for an existing organization. The plan involves reorganizing HRM as a "customer care unit," which will undertake responsibilities associated with the standardization and monitoring of TQM within the corporation.

Increased global competition and the success of many foreign industries in what were traditionally considered local markets has led to many organizations restructuring the way they conduct business, with a greatly increased awareness regarding their commitment to quality. This change in corporate culture necessitates a greater emphasis on the interaction between the provider and the supplier of a service or product. The involvement of HRM is critical in (i) monitoring the performance of

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a firm in providing quality, and (ii) assisting in the development of a process which will enhance employee skills so that the firm may maintain and improve its ongoing relationship with clients.

"More recently, the 'soft' side of TQM has begun to emerge in the literature focusing on creating an organizational culture which stresses client awareness within the organization."

In defining TQM, one needs to consider various dimensions of quality (Fisher, 1990). In addition to factors involved with the actual physical attributes of a product, it is essential to consider the firm's effectiveness in meeting the needs and expectations of its clients. Effective TQM necessitates organizational focus on meeting and exceeding customer expectations by developing a new management approach and corporate culture (Berry, 1991). This paper builds on the results of Wilkinson, Marchington and Dale (1993) by proposing a plan to assist this transition through the integration of HRM, and suggests guidelines which may help HRM contribute to the firm's goal of achieving TQM. We begin by reviewing the current state of the literature about the interaction of HRM and TQM in section II. We then proceed in section III to discuss survey results which suggest that the reorganization of the HRM department could increase one of the benefits of the organization's commitment to quality, namely, consumer satisfaction. We then proceed to overview a proposed role for Human Resource Management in the TQM plan in section IV. These results are further extrapolated upon in section V, where we discuss a scenario in which HRM assists in the development of a "Customer Care Unit." Section VI is by way of conclusion.

II. LITERATURE REVIEW

The concept and importance of TQM as being central to the successful competitive viability of a firm is not new. However, current literature has seen an explosion of publications in the area of TQM as viewed from the operations/production domain; for example, Dale and Plunkett (1990). A substantial gap in the treatment of social factors related to TQM exists, as noted by Hill (1991), despite the fact that Crosby (1979) and Ishikawa (1990) note that the ultimate success or failure of TQM depends partially upon the interaction and involvement of the organization's primary human resource, namely, people. Consequently, much of the existing literature continues to focus on the "hard" side of TQM. In retrospect, we recognize that this reflects the production orientation of most individuals involved in total quality management, where the prevailing background lies in areas such as statistical quality control, layout and design, and just-in-time inventory control.

More recently, the "soft" side of TQM has begun to emerge in the literature focusing on creating an organizational culture which stresses client awareness within the organization. The necessity of achieving a change in organizational culture in order to achieve TQM is discussed in Glover (1992). Although this treatment is still in the developmental stage for many US firms, Ishikawa (1985) notes that for some time the Japanese have recognized that the employee is ultimately responsible for quality. Taguchi (1986) touches upon the importance of communication between employee and management in achieving TQM, but the significant importance of employee participation in the decision making process is advocated to a greater extent by Deming (1986) and Feigenbaum (1983). The importance of "total employee involvement" within all levels of the organization is also cited by Oakland (1989) and Ross (1993). The interaction between the human resource dimension and total quality management is supported further by Dale and Cooper (1992), who note that many of the underlying principles of TQM are those emanating from this "soft" side, i.e., the human-oriented side. Furthermore, the failure of

some organizations to successfully implement TQM is related to factors such as resistance to change, management style and organizational culture, again part of the human element present in an organization, as discussed in Kearney (1992) and Miller (1992).

When considering many of these social and "soft" side issues, the involvement of the Human Resources function may come into play. The fact that TQM and HRM can have mutually beneficial benefits is discussed in Wilkinson, Allen and Snape (1991). There have been attempts to assess the human resource function's contribution to business in general (Legge [1978], Tyson [1987]), but few efforts have focused on the contribution that HRM can make to the organization's TQM commitment, let alone a methodology for integrating HRM into the TQM plan. A few notable efforts may be cited. Samson, Sohal and Ramsay (1993) conclude that the implementation of TQM cannot be effective without consideration of a number of human resource issues such as training, cooperation and involvement, and overall work culture. Their results are based on case study experiences in Australia. Walker (1992) discusses the changes in management philosophy and organizational culture (whose acceptance and implementation are directly related to the HR function) which enabled Rank Xerox to regain lost market share from Japanese competition. Wilkinson, Marchington & Dale (1993) undertook studies in 15 UK organizations. Their findings were that the human resource function can make significant contributions to total quality management in many areas. Some of these included public strategy intervention and behind-the-scenes facilitation at a task level, where contributions were found to be made at both strategic and operational levels. This paper builds on the empirical findings of Wilkinson et. al. by proposing a way for human resource management to effectively enhance the organization's commitment to total quality management. This is done by decentralizing the total quality effort among various groups, one of which we propose to be a "Customer Care" unit. After presenting some statistical evidence supporting the importance of HRM in achieving TQM, we outline a basic model in which the human resource team can be reorganized in increasing the benefits associated with TQM.

III. THE NEED FOR HUMAN RESOURCE MANAGEMENT

We begin by discussing survey results designed to determine the impact that HRM can have on some aspect of TQM benefits. This benefit was measured by a consumer satisfaction response variable. Our survey consisted of 144 respondents from various organizations. These respondents were asked to consider the following three issues:

- 1) Their firm's client's overall level of satisfaction,
- 2) Their firm's overall level of employee satisfaction, and
- 3) The firm's overall commitment to quality management.

Responses were to be scaled between one and ten. A score of ten indicated the highest level of satisfaction/commitment, while a score of one indicated the lowest. A response of five indicated an average level of satisfaction/commitment. Respondents were also grouped (blocked) according to their firm's size. Three groups were considered:

Block:	# Employees	Sample Size
1	1-200	29
2	201-2000	43
3	>2000	72

The first result we considered involved the mean response level for each of the three issues itemized above. We initially considered the sample as a whole. The grand mean responses for issues one, two and three were 6.2, 4.7, and 6.0, respectively. In light of the recent emphasis on quality management, we were somewhat surprised at the low mean response of 6.2 for client satisfaction. However, since responses were only employee's perceptions of client satisfaction, heed was paid to the magnitude of the results, as we would expect each employee's frame of reference to be different. Perhaps equally surprising was the overall result for employee satisfaction (grand mean = 4.7). Further evaluation indicated that none of these results differ significantly from 5.0 ($\alpha = .10$). Following this

analysis, we then considered blocking the data. The results are summarized below in Table 1:

Table 1: Mean Response (Standard Deviation)

Block	Size	Issue:		
		1 <u>Client</u> <u>Satisfaction</u>	2 <u>Employee</u> <u>Satisfaction</u>	3 <u>TQM</u> <u>Commitment</u>
1	1-200	6.27 (1.82)	5.37 (2.16)	5.03 (2.08)
2	201-2000	6.14 (1.26)	4.67 (1.87)	6.21 (1.93)
3	>2000	6.17 (1.74)	4.53 (2.00)	6.25 (2.19)

From the data, we note that larger firms appeared to place a heavier emphasis on TQM than smaller firms, while smaller firms achieved higher levels of employee satisfaction. These conclusions were supported by standard statistical tests of hypothesis ($p < .01$). Neither of these results would contradict expectations. We further note that this disaggregation of the data by block/group as shown in Table 1 showed no effect upon client satisfaction, where differences in the three response levels to issue 1 were insignificant ($p > .10$).

Our next concern was to determine whether one of the response variables, client satisfaction, was positively correlated to either of the two remaining factors of interest: employee satisfaction and emphasis on quality management. Though results from Table 1 were insufficient to warrant a conclusion, the determination of the sample correlation coefficient (utilized on the sample as a whole for each factor independently) indicated a positive association between both factors (employee relations [$\rho=.52$] and emphasis on TQM [$\rho=.40$])—and client satisfaction, which was to be expected. The results were deemed significantly different from zero, with respective t values of 7.25 and 5.14. Consequently, we were able to conclude that there is a positive effect on

client satisfaction through increased emphasis on both employee relations and total quality management.

In light of the low level of employee satisfaction found in the larger firms (group 3), we suggest that increased emphasis on employee relations could increase client satisfaction in these firms from its current value of 6.17. Since (i) one of the primary roles of the HRM team is to assist in improving both employee relations and employee satisfaction, and (ii) employee relations are positively correlated with client satisfaction, it follows that (iii) the HRM team can make a contribution to client satisfaction, which is a primary goal of the commitment to Total Quality Management.

To understand more specifically the effect of each factor (employee satisfaction and emphasis on quality management) on the dependent variable (client satisfaction), a regression analysis and corresponding ANOVA were evaluated. Both factors were found to be highly significant ($p < .001$) and accounted for approximately 31% of the variation in consumer satisfaction responses. Inclusion of factors accounting for blocks were insignificant. Note that r^2 is low, due in part to the fact that there exist many other factors which could account for a significant percentage of the variation which were not considered (such as actual product quality). Further, the resulting regression coefficients (.35 and .17, respectively) indicate that the sensitivity of the responses regarding client satisfaction were greater to changes in employee satisfaction than to the emphasis on quality management ($p < .05$). Consequently, it appears that client satisfaction is not only positively correlated with employee relations, but also perhaps more significantly than with the firm's emphasis on quality management. Therefore, efforts to improve employee relations, which are tied directly to HRM, could offer significant improvements in client satisfaction. These results suggest that finding a way to integrate HRM in the TQM plan may significantly improve the level of client satisfaction for an organization's clients.

We note that this evaluation was but a starting point in what could lead to a much more in-depth analysis. Our main concern was to establish that there exists a role for HRM with regard to the benefits of TQM implementation through improving employee relations, and support the view that the human resource dimension plays a significant role in the implementation of TQM.

"The importance of HRM in creating a tempered environment which will facilitate the incorporation of TQM has been recognized by top-level management within some organizational settings."

A word of caution is to be made: As with many other statistical evaluations, the results must be evaluated in light of the fact that responses were based on employees perceptions, which (i) do not necessarily represent an objective view of the response variable, and (ii) are relative due to each employee's frame of reference and personal biases. Personal biases could also play a role in each respondent's responses. Corrections for these factors were not considered.

IV. THE ROLE OF HUMAN RESOURCE MANAGEMENT IN TOTAL QUALITY MANAGEMENT

The importance of HRM in creating a tempered environment which will facilitate the incorporation of TQM has been recognized by top-level management within some organizational settings. How well HRM performs this role within these organizations hinges on (i) their

understanding of the underpinnings associated with TQM (Rosett & Krumdieck, 1992) and (ii) their ability to coordinate the organization's human resource activities towards providing quality service to its clients. Essential to this coordination is the full commitment of senior management, whose responsibility is to ensure that the process is continually implemented and monitored while simultaneously creating a spirit of internal harmony for all those involved (Wilkinson & Witcher, 1991). We suggest that the role of HRM in this coordination should include, but not be limited to, the following external (consumer based) and internal (employee based) functions:

- Initiating programs which develop and facilitate communication regarding quality within all levels of the organization, including statistical analysis of data. Inherent in this task is HRM's responsibility to generate interest among the workforce towards the active participation in these studies.
- Monitoring both customer and interdepartmental relationships.
- Assisting in training employees in communication sciences.
- Establishing and disseminating a vision which will assist in the cultural change mandated by the implementation of a TQM philosophy.

In addition to the above, we suggest that HRM must also transform some of the more traditional views of what "value" in a good or service represents, instilling the proper imagery within the conceptual framework of each employee. To truly understand how "value" may be measured, one must consider a philosophy in which the final process in the provision of a good or service is the performance of the product when it is placed in the consumer's hands (Aguayo, 1991). For purposes of clarity, we briefly discuss two instances where the traditional interpretation of value may need refining:

Instance 1: Quality cannot be evaluated by preference. Although stainless steel may be universally preferred to sterling silver, it does not imply that stainless steel has higher quality than sterling silver. The

dominance of steel over silver within homes is primarily due to consumer preferences, which are predicated on consumer needs (together with price, which also playing a significant role). The quality of either product should be gauged relative to the consumer's expectations for that product alone, measured in such terms as performance, durability, aesthetics and customer service. Management must be aware of the unique set of expectations each product or service generates, and craft its service or manufacturing process so as to meet or exceed those expectations.

Instance 2: The confusion of quality with new technology features. It is common to assume that a product containing a unique feature will represent higher quality than a product with none. For example, consider the Pentium microchip. Although advertised as being able to break the barriers of conventional PCs with regard to micro computing speed, the success of the Pentium chip rests not primarily on its ability to achieve what is advertised, but on the ability to meet consumer expectations. These expectations will include many facets other than computing speed, such as reliability, accessibility, service, and cost. The mere fact that the chip features new technology elements does not imply that the chip will be a "quality" product.

The importance of the organization's employees in the successful implementation of TQM cannot be understated. Parker (1991) goes so far as to state: "Employees are the most important company asset—it's just that clear to me." However, successful implementation of TQM can occur only when management has a clear view of what is to be accomplished, and can effectively involve their most valued asset—human resources, in the process. TQM is possible only if employees are ready to share the vision that all organizations are in the business of customer service. HRM can assist in this regard by providing guidelines throughout all levels, disseminating the proper vision of TQM. Put another way, HRM can prompt employees to take on a leadership role, and instill within the employees the spirit that:

- (i) leadership is not only found at the top of an organization's management chain, but at all levels, and
- (ii) that each and every employee is a leader in his/her own right.

Leaders should have the courage to make decisions and utilize their transformational power to make a total commitment to TQM without the fear of failure. The distribution of the "leadership" role within an organization, through the assistance of HRM, allows a firm to implement TQM more on a strategic level, as opposed to a departmental level, which helps to insure a consistent vision of what TQM represents throughout the organization.

"HRM must also transform some of the more traditional views of what 'value' in a good or service represents, instilling the proper imagery within the conceptual framework of each employee."

V. HUMAN RESOURCE MANAGEMENT AS A CUSTOMER CARE UNIT

We propose that HRM delegate the total quality management effort to various groups while sharing the role of a "Customer Care" group. While the customer service department responds directly to the consumer, the Customer Care group:

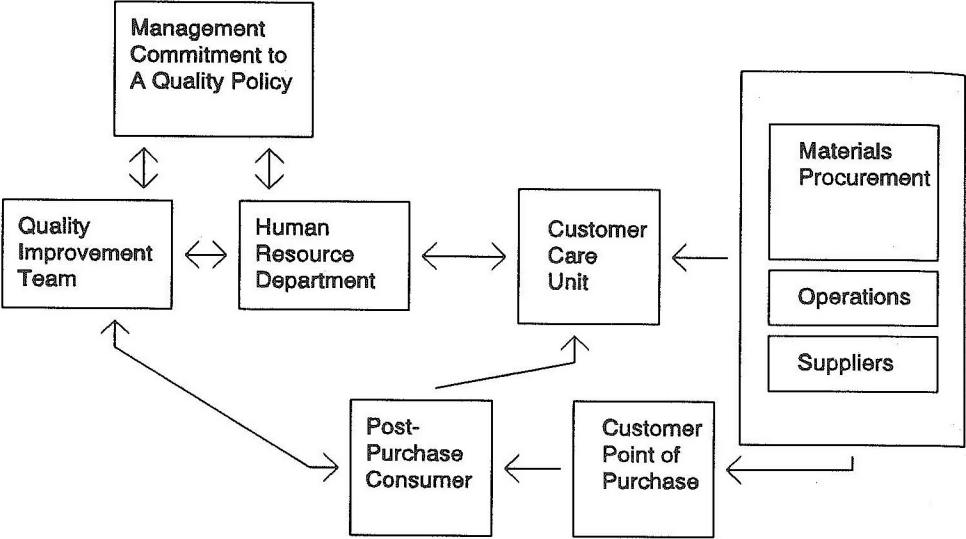
- (i) helps to standardize and monitor TQM,
- (ii) investigates ways to improve responses to the consumer (Colby, 1992), and
- (iii) supports the corporate-wide TQM image.

HRM should simultaneously work to remove internal organizational biases mandating a departmental "us-against-them" attitude in favor of a cooperative effort between departments, processes and employees at all levels. If HRM can transform the current environment into a culture which emphasizes the success of the organization as a single entity, as opposed to the naturally attractive alternative which stresses individual success, then TQM can be successfully implemented. Hammons and Maddux (1992) suggest that HRM can be the overseeing link in this transformational process where total quality is not only built into the product or service, but incorporated into the design of the product, service and system.

"The Customer Care group, which would include members from procurement, operations, suppliers and consumers, as well as HRM, would provide feedback, identify potential problems and plan future improvement."

As suggested, the implementation and responsibility of monitoring quality, and receiving and distributing feedback, may be delegated to different groups within the firm. For example, a "Quality Improvement" team containing representatives from all organizational levels may be assigned the specific function of monitoring TQM. The HRM team may be responsible for employee orientation and the creation of a culture which instills the visions and doctrines held by TQM. The Customer Care group, which would include members from procurement, operations, suppliers and consumers, as well as HRM, would provide feedback, identify potential problems and plan future improvement. An example of a prototype model illustrating this concept is shown below in Figure 1.

Figure 1: PROTOTYPE OF CUSTOMER CARE GROUP



The implementation of the type of model illustrated above would help communicate to employees the reality that top-level management is pursuing an all-out commitment to quality. Lack of this reality serves as a potential barrier to the implementation of TQM within an organization (Augenblick, 1990). Although U.S. response to TQM has been somewhat sluggish in the past, the 90s have brought radical change regarding an organization's commitment to TQM. We are also becoming increasingly aware that the successful implementation of TQM requires the active involvement of everyone, not only top management, something which was recognized in foreign markets as far back as 1947 (Ishikawa, 1985).

In order to accomplish the goals discussed thus far, HRM must develop an action plan through which all the goals of TQM can be met. We present below a sample plan illustrating the steps that HRM can follow in preparation for the implementation of an organization-wide commitment to TQM:

- form structured learning cells through which the benefits of TQM can be understood by all existing employees within HRM,
- conduct on-site visits to other organizations implementing TQM,
- develop a company-wide promotional effort geared towards motivating employees to share in the implementation of TQM,
- define, within the context of the service or product provided, what the dimensions of quality are, and set guidelines regarding how these dimensions may be satisfied,
- develop a monitoring system, such as that shown in Figure 1,
- develop a training process through which all employees at all levels can understand the benefits of TQM, and the role that they may play as leaders within the new TQM environment.

"Because TQM requires a total organizational commitment, this change can be greatly facilitated through the active involvement of HRM."

It is our belief that HRM can begin to make a significant contribution to the changing corporate image and culture only after these preparatory steps have been accomplished.

VI. CONCLUSION

Transforming the corporate culture is not easy. Because TQM requires a total organizational commitment, this change can be greatly facilitated through the active involvement of HRM. Human resource professionals have equipped themselves with invaluable human relations skills, and can contribute towards maintaining the delicate balance between concern for

production and concern for employees. The development of an HRM model which includes a "Customer Care" group can provide assistance in:

- (i) providing a vision of TQM,
- (ii) monitoring the progress towards the firm's goals in achieving TQM, and
- (iii) provide feedback at all levels regarding the level of success the firm is having in their pursuit of TQM.

Although U.S. industries still boast of inflated profit levels in the 90s, we now recognize that much of this gain was realized at the expense of the employee due to layoffs and consolidation (Bhargava, 1992). The net result of these actions has been the continued loss of employee loyalty, without which TQM is helpless. A reversal in trend can come about only through a company-wide commitment to quality. This involves the vision that each and every employee share in the leadership role and responsibility for an accurate representation of the firm's commitment to quality with every action that is undertaken. TQM is a group policy, and the human resource professional can play an active role in this restructured culture by unifying the workforce and instilling a vision of quality, not only throughout all levels of management, but throughout the whole organization. This view of the organization is essential towards building quality into the design of the system. HRM can play a leading role in the transformation of "big business" from a money making conglomerate to a well-tempered service provider concerned with quality and the benefit of all involved, both within the organization and without.

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EFFICIENCY IN FINANCIAL CONTRACTING: BOND COVENANTS AND CORPORATE BANKRUPTCY†

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This study examines the wealth loss that occurs for both stockholders and bondholders in the period surrounding the announcement of a bankruptcy. Examining a sample of 161 bonds issued by firms that subsequently went bankrupt during 1979-1990, we find that the covenant structure contained in the indenture is an important determinant of cross-sectional variability in the magnitude of the creditors' wealth loss. Covenant sets addressing the disposition of assets and control of dilution of bondholder influence were found to be statistically significant determinants of bond returns surrounding the period of bankruptcy announcement. We also document a direct relation between creditor wealth loss and the frequency of issue downgrade by professional rating agencies. Since ratings reflect an issue's covenant structure, this suggests that financial markets respond both to the presence of specific covenants as well as the evaluation of these covenants by external monitors.

Recent research on corporate bankruptcy reveals that the priority of claims is often violated in bankruptcy proceedings¹. For example,

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Weiss (1990) finds that the strict priority of claims in is violated for 29 of 37 firms filing for bankruptcy between 1980 and 1986. It is also generally recognized that the provisions of the Bankruptcy Reform Act of 1978 provide shareholders with a valuable option to delay reorganization. Once the firm declares bankruptcy, its management possesses a 120 day exclusivity in proposing a plan of reorganization. Moreover, the courts have shown a willingness to extend this period. The bankruptcy code also grants shareholders the right to vote on a plan, which can result in wealth transfers from bondholders to shareholders.

This paper argues that shareholders' ability to retain residual claims in violation of absolute priority is likely to be a function of the structure of its debt contracts. Thus, a bond contract which provides more protection to bondholders is likely to result in less impairment of bondholders' claims during the bankruptcy process. Secured creditors, for instance, generally suffer relatively little from attempts at wealth transfer and are typically paid their contractual amount. Within the class of unsecured creditors, however, restrictive covenants can mitigate agency conflicts and hence potential wealth transfers from bondholders to shareholders.

We examine the extent to which the structure of debt contracts influences the expropriation of bondholder wealth by shareholders during the course of a bankruptcy. We document the existence of a wealth loss for both debt and equity over the period surrounding the announcement of bankruptcy. The significant losses to creditors are consistent with violations of absolute priority. If the restrictive covenants present in debt contracts mitigate wealth transfer, then one would expect bondholders in firms that issued more restrictive debt to experience smaller wealth losses. Consistent with our predictions, we find a direct relation between the abnormal bond price reaction to the announcement of bankruptcy and the restrictiveness of debt contracts. These results indicate an efficiency in the contracting process whereby the least protective bonds suffer the largest losses when firms file for bankruptcy.

This study is organized into four sections. In the following section we describe our sample construction procedure as well as the methodologies employed to calculate both bondholder and stockholder excess returns. Section III contains our empirical findings for both an analysis of the ability of covenants to control wealth transfers from creditors as well as the information content of bond rating changes prior to bankruptcy. We present a brief summary and conclusion in section IV.

II. DATA AND METHODOLOGY

A. Data Description and Sample Selection

Our sample period begins in November 1979 and extends through December 1990.² Using the *Dow Jones News Retrieval Service*, we obtain an initial listing of 841 firms announcing bankruptcies over this period. Firms are then excluded from further analysis if they (a) are not listed on New York Stock Exchange, American Stock Exchange or the Over-the-Counter Market, (b) have announcements of bankruptcies following delisting from any of these three exchanges, (c) either have no common stock returns the day of the bankruptcy announcement (day 0) or have less than 50 common stock returns during the estimation period, day -250 to day -21, (d) file for Chapter 7, or (e) do not have details regarding their bond covenants are unavailable from either prospectuses or *Moody's Industrial Manual*. Our final sample consist of 161 bonds, issued by 87 different companies. Table 1 contains a description of our sample in terms of industry distribution, timing and firm issue multiplicity.

For our sample of 87 bankrupt firms we obtain from monthly issues of *Moody's Bond Guide* a listing of those bonds outstanding at the time of bankruptcy. For 52 of the outstanding issues we are able to obtain copies of the prospectus from Moody's Investor Services, New York, NY. From these prospectuses we are able to tabulate the set of covenants contained in each bond indenture. For the remaining 109 bonds, we employ various

editions of *Moody's Annual Industrial Manual* to determine which covenants are contained in each issue.³

"These findings are consistent with the argument that the market capitalizes the costs of the reorganization process in the prices of both sets of securities."

B. Methodology For Measuring Security Abnormal Returns

Both daily abnormal returns and cumulative abnormal returns are estimated for a number of cumulation periods surrounding the announcement of Chapter 11 filings, based upon the market model described in Dodd and Warner (1983). The market model parameters are estimated using days -251 through day -21 as the estimation period. Returns on the *Center for Research in Security Prices* (CRSP) value-weighted index are used to proxy market returns.

The reaction of our sample 161 bonds to the filing for Chapter 11 is examined using the methodology described by Handjinicolaou and Kalay (1984). This methodology involves the use of mean-adjusted returns, as in Brown and Warner (1980), and addresses two issues that are especially relevant for an analysis of daily bond reactions. The first is that bonds trade infrequently relative to the behavior of common shares. Secondly, bond returns are effected by changes in their term structure. In response to the first problem, our use of the Handjinicolaou and Kalay method incorporates consideration of daily and multi-day returns based on observed trades. With respect to the second issue, bond returns are adjusted for the yield on matching treasury bonds with the closest maturity and coupon.

These adjustments allow the analysis of daily risk-adjusted returns, with less probability of contamination by any possible announcement effect. Closing bond prices are collected for 60 days prior to the bankruptcy announcement to 15 days following the announcement. Our estimation period extends from day -60 through day -16, while various examination windows are constructed over days -15 to day 15.⁴

III. EMPIRICAL RESULTS

A. Evidence on Wealth Impact of Bankruptcy

In Table 2 we present evidence on the wealth effects of Chapter 11 bankruptcy filings for both stockholders and bondholders. We report results for a number of different cumulative abnormal return windows surrounding the filing. Our findings indicate that both equity and creditors suffer wealth losses in the period surrounding the bankruptcy announcement. In the three day period immediately surrounding the filing (i.e., day -1 through day +1), equityholders experience a -16.3% abnormal return while the corresponding abnormal return for bondholders is -6.3%. Similar results occur for other cumulation periods, with the two-day (0, +1) return significant at the 1% level. These findings are consistent with the argument that the market capitalizes the costs of the reorganization process in the prices of both sets of securities

One of the costs of a bankruptcy reflected in bond prices is the violation of the absolute priority rule (APR). The Bankruptcy Reform Act of 1978 allows shareholder to retain a residual claim even in the absence of full compensation to other claimholders. Deviations from the APR are well documented in the extant literature. Frank and Torous (1989) found that 21 of 27 firms exhibited deviations from the APR. In addition, Weiss (1990) examined 37 firms that filed for bankruptcy and found that 27 of these firms violated the APR. More recently, Eberhart, Moore and Roenfeldt (1990) estimate that shareholders receive on average 7.6% in excess of that due under strict adherence to the APR. This empirical

evidence is consistent with the argument that the bankruptcy process results in a wealth transfer from bondholders to shareholders.

"By combining covenants together, we can better assess the extent to which bondholders have been able to protect themselves from future anticipated wealth reducing actions by management."

One possible explanation for these APR violations and the wealth transfer they indicate is the right of incumbent management to possess a period of exclusivity in proposing a plan of reorganization. Management often uses this time to renegotiate with creditors and to mark down the value of creditor claims.⁵ Frank and Torous (1989) argue that the option to delay reorganization is a call option that the Bankruptcy Reform Act of 1978 provides shareholders. Thus with greater time to reorganization, the call option becomes valuable with correspondingly greater losses to bondholders. Consequently, we argue that security price reactions upon the announcement of bankruptcy reflect unbiased expectations of time to reorganization. This implies a negative relation between the time to reorganization and bond price reaction. Similarly, we predict a positive relation between time to reorganization and stock price reaction.

To examine the above hypotheses, we separately regress the excess returns to bondholders and stockholders against the time to reorganization. The time to reorganization is defined as the number of days that elapse between the announcement of bankruptcy and the court's acceptance of a plan of reorganization.⁶ Although we do not report the results separately, our findings indicate a weakly significant inverse relation between bond

excess returns and the time to reorganization.⁷ Longer delays in reorganization appear to result in more negative excess returns for creditors. An examination of shareholder's excess returns and the reorganization time indicates a positive relationship, though not statistically significant.

Viewed collectively, the evidence in the extant literature and results presented above suggest that documented violations of absolute priority result in wealth transfers between bondholders and stockholders. In the following section, we document evidence suggesting the effectiveness of indenture covenants to mitigate these wealth transfers.

B. Bond Covenant Analysis

In Table 3 we provide a frequency distribution of the various covenants contained in our sample of bonds. We observe thirteen different covenants included in the bond indentures. In addition to an individual covenant analysis, we also consolidate them into three categories following the scheme described by Ross, Westerfield and Jaffe (1990). These categories represent financial statement covenants, restrictions on asset disposition and restrictions on claim dilution. This first set of covenants addresses the firm's financial position through the monitoring of working capital requirements, interest coverage and minimum net worth. These covenants attempt to prevent distortions in the firm's investment policy which may lead to increases in bond risk. The second set of covenants restrict the disposition of assets. They represent the bondholders' efforts to limit the ability of shareholders to transfer assets to equity and consequently underinvest in the firm. The third set of covenants limits the leasing and borrowing ability of firm's management. This prevents the dilution of existing creditor claims by shareholders attempting to issue new debt of equal or greater priority.

To determine the protection provided to creditors by the various bond covenants, we examine the impact of these covenants on bond excess

returns surrounding the announcement of bankruptcy. Existing financial theory however, provides little guidance on how debt covenants are selected for packaging in a debt contract. Smith and Warner (1979) state,

[W]e have not developed a theory which is capable of explaining how for a given debt issue, the total 'package' of covenants is determined. Further work on the substitutability or complementarity of the specific contractual provisions is necessary before it is possible to predict, for any set of firm-specific characteristics, the form which the debt contract will take.

Not only is an optimal debt contract difficult to design, but a covenant may not necessarily provide bondholders with the protection that it implies. For example, if debt contracts impose restrictions on the issuance of additional debt, shareholders could engage in leverage or risk increasing mergers or asset sales and thereby transfer wealth away from bondholders.

By grouping related covenants together, however, we can address a particular area of bondholder-shareholder conflict. For instance, the collection of financial statement covenants which focus on minimum net worth and sinking fund issues is designed to control the distortion of investment decisions by management.⁸ Since shareholders are residual owners of the firm, they possess an inherent preference towards more risky assets. By combining covenants together, we can better assess the extent to which bondholders have been able to protect themselves from future anticipated wealth reducing actions by management. A combination of covenants addresses a greater number of contingencies and is more likely to describe the prohibitions and applicable remedies when standards are violated. Thus in the presence of efficient contracting we should expect that these sets of covenants will control shareholder expropriation of bondholder wealth better than any singular covenant.⁹ Yet, since our understanding of potential complementarities and substitutabilities among covenants is not sufficiently well developed, it is important to examine individual covenants as well as groups of covenants to examine their

impact on the wealth loss suffered by bondholders in the period surrounding a Chapter 11 filing.

Table 4 presents the estimated coefficients from regressions of the bond excess returns against a binary dummy variable, which denotes the presence or absence of a particular covenant. The results suggest that the presence of restrictions on issuing additional debt is the only covenant that significantly influences bond price reaction around the announcement of bankruptcy.

In an alternative specification, we regress the excess returns on dummy variables representing the three categories of covenants described previously. To the extent that a bond has any of the corresponding covenants in place, the dummy variable assumes a value of one. Table 5 presents the estimated coefficients from regressions of bond and stock excess returns on dummy variables for these three categories of covenants. Panel A reports the findings from an analysis of bond excess returns. The results reveal that the coefficients on the dummy variables are uniformly positive, indicating that the presence of these covenants serves to restrict the transfer of wealth to shareholders. Two of the coefficients are statistically significant, suggesting that covenants on the disposition of assets and the dilution of bondholder control are important safeguards for creditors.

Covenants regarding asset disposition serve to protect creditors in several ways. First, they prevent shareholders from selling assets piecemeal, which is generally less effective than selling the entire firm as a going concern. They also prevent shareholders from substituting variance increasing assets for those currently owned by the firm. Lastly, many of the asset disposition covenants require that some portion of the proceeds from the sale of assets be used to retire debt. Such an arrangement has the effect of increasing debt coverage and hence reduces bondholder risk.

Dilution control covenants attempt to prevent the reduction of bondholder influence by restricting the issuance of additional debt, by limiting the generation of other debt-like obligations and by resisting unfavorable changes in voting rules. These covenants also define the rights of creditors in the event of a default or if the issue is called.

"A change in a bond's rating can be viewed as an evaluation by an external monitor of the impact that the changing financial conditions of the firm will have upon promised cashflows to creditors, given the issue's covenant structure."

The insignificance of the financial statement covenants in explaining the cross-sectional variation bond excess returns may be due to the limited number of covenants that are actually present for the bonds in our sample. Only two covenants are included in this set: minimum net worth and a sinking fund provision.¹⁰ Only 5% of our sample have provisions for minimum net worth standards, although the sinking fund provision is more widely represented in our sample (77.6%). Table 4 shows that the sinking fund covenant in isolation is ineffective. Thus it should not be surprising that this covenant in combination with a sparsely used minimum net worth provision is insignificant as well.

In panel B we report our findings for the corresponding impact of these covenants upon equity holders. We note that all three dummy variables are negatively related to shareholder excess returns, indicating that these covenants restrict the amount of wealth expropriation by shareholders

during bankruptcy. The asset and bond dilution sets of covenants are statistically significant and indicate an ability of these provisions to restrain transfers of wealth to equity. These covenants, however, are significantly positive in an analysis of creditor returns. This symmetry in results is strong evidence regarding the efficacy of certain covenants to control the violations of claimant priority that often occur during the course of a bankruptcy.

C. Bond Rating Changes and Market Anticipation of Bankruptcy

Covenants are also an important determinant of a bond's rating as assigned by professional rating agencies such as *Moody's* or *Standard and Poor's*. A change in a bond's rating can be viewed as an evaluation by an external monitor of the impact that the changing financial conditions of the firm will have upon promised cashflows to creditors, given the issue's covenant structure. Thus, if bond rating changes reflect information about the likely effectiveness of an issue's covenant structure, we should expect to observe a direct relation between creditor wealth losses at the time of bankruptcy announcement and the extent of a rating reevaluation.

In this section we examine if an issue's rating history provides additional explanation for the cross-sectional variability in security returns surrounding a bankruptcy. One concern is that an examination of bond covenants, either separately or in groups, will not be especially insightful if bond ratings already subsume the information contained in those covenants.¹¹ We argue that the time series of bond ratings represent a periodic reinterpretation of the bond's covenants and their impact on creditors' wealth in the event of a bankruptcy.

In order to examine this possibility, we analyze the time series of rating changes by *Moody's* for two years prior to the firm's announcement of bankruptcy. Specifically, we obtain an issue's rating history from the monthly editions of *Moody's Bond Guide*. The average bond in our sample had 1.67 downgrades in the two year period preceding the

announcement of bankruptcy, ranging from a minimum of only one down grade to a maximum of four. The average magnitude of the downgrade was 1.5 grades. The last downgrade for the average bond in our sample occurred 2 months prior to bankruptcy, although when the magnitude of the downgrade was incorporated with the timing of the downgrade as a weighted average, this value dropped to 1.53 months.¹²

In Table 6 we report our results from an analysis of the relation between a bond's rating history and creditors' returns at the time of bankruptcy. In panel A we examine the impact of the number of downgrades in the preceding two years on bondholders' returns at the time of bankruptcy announcement. As the bonds are downgraded, there is a corresponding decrease in the quality of the creditors' position regarding the certainty of payment of the promised cashflows. As the expected value of the payment to creditors continues to decline with additional downgrades, it is likely that creditors are more vulnerable to wealth expropriation by shareholders. Two possible sets of circumstances may explain this. First is the observation that those bonds which experience a greater frequency in downgrades represent issues of greater risk. The rating itself is after all an assessment of default probability. Second, as creditors observe the value of their claim decrease with additional downgrades, there is an incentive to reach an agreement with management and thereby stabilize bond values. In this negotiation process, creditors will likely be required to surrender some value to shareholders.

The results of Table 6 provide limited evidence of such an occurrence. In panel A we observe a significantly inverse relation between the number of downgrades a bond experiences in the two years preceding a bankruptcy and the magnitude of creditors' excess returns surrounding the bankruptcy. This relationship holds for both a long 31 day cumulation period (i.e. days -15 through day 15) and for a shorter, pre-event period (i.e. days -15 through day -1).

In panel B we incorporate both the relative timing and the magnitude of the downgrade into our independent variable. The significance of the

relationship increases with this added information, indicating that creditors do experience a greater wealth transfer as their claims are more severely downgraded by the rating agencies.

"Although individual covenants were found ineffective, sets of related covenants were better able to explain the cross-sectional variation in the wealth loss suffered by creditors upon the announcement of a bankruptcy."

IV. CONCLUSION

This study attempts to explain the cross-sectional variability in the wealth transfer occurring at bankruptcy between bondholders and shareholders. The law provides the incumbent management with certain advantages in its negotiation with creditors. This is an essential characteristic of reorganization. Perhaps chief among these advantages is management's initial monopoly in proposing a plan of reorganization. The voting majority requirements among creditor classes only further serves to strengthen management's position. Previously cited studies indicate that management is able to exploit these advantages by expropriating wealth from bondholders and transferring it to equity. Estimates of the magnitude of this wealth transfer are reported at 7.5% of the total awarded to all claimants.¹³

In this study we first confirm the existence of a wealth loss for both debt and equity over the period surrounding the announcement of

bankruptcy. These significant losses to creditors are consistent with earlier documented violations of absolute priority and is suggestive of a wealth transfer. We then analyze the extent to which various covenants contained in the bond indenture can be effective in protecting creditors from this wealth loss. Although individual covenants were found ineffective, sets of related covenants were better able to explain the cross-sectional variation in the wealth loss suffered by creditors upon the announcement of a bankruptcy.

We next examine the time series of rating changes for our sample of defaulted issues since bond ratings reflect an evaluation of an issue's covenant structure. We find a weakly significant inverse relation between the frequency and magnitude of a downgrade and excess returns to creditors in the period surrounding a bankruptcy announcement. This is consistent with the hypothesis that external evaluation of the covenants plays an important role in explaining the cross-sectional variation in creditors' losses at the time of bankruptcy.

The results from this study indicate that the wealth transfer from bondholders at bankruptcy is not uniformly distributed. Bondholder loss is at least partially determined by the extent to which protective covenants are included in an indenture and the evaluation of the effectiveness of those covenants by external rating agencies. Thus violations of the absolute priority rule demonstrate a greater cross-sectional variability than earlier research has suggested.

NOTES

1. Application of the absolute priority rule of bankruptcy requires that creditors must be fully satisfied before shareholders receive any distribution of firm value.
2. This selection of the sample period corresponds to the passage of the Bankruptcy Reform Act in 1979 which replaced the existing Chandler Act of 1938 and represented the first major revision of U.S. bankruptcy procedures in 40 years. Consequently, by beginning our study in 1979 we avoid those bankruptcies that span legal regimes and potentially contaminate the interpretation of results.
3. Asquith and Wizman (1990) report a 21% inaccuracy rate when comparing the covenant reporting contained in *Moody's Industrial Manual* to that of the original prospectuses. In order to verify the accuracy of our sample, we compared the list of bond covenants based upon original prospectuses with those described in *Moody's Industrial Manual*. We were however, unable to identify any reporting inconsistencies in our sample based upon this comparative examination.
4. The statistical significance of the abnormal return (Mean Excess Premium Bond Return), is assessed through the z-statistic for the corresponding standardized excess premium bond return (Handjinicolaou and Kalay, 1984).
5. Creditors will often agree to a diminution of their claims in an effort to hasten the normally slow process of bankruptcy as well as to avoid an unfavorable reevaluation of their priority standing by management.
6. The time to reorganization ranged from a minimum of 33 days to a maximum of 1,598 days. The mean time in reorganization for our sample of firms was 446 days.

7. Specifically, the two day excess bond return for days 0, +1 were inversely related to the time to reorganization and statistically significant at the 10% level. Other cumulation periods revealed the same negative relation with time to reorganization, but were not statistically significant.
8. Other covenants that are often included to monitor the investment policy of management are working capital requirements and interest coverage standards.
9. See Lehn and Poulsen (1991) for a description of the historical evolution of bond covenants and their ability to provide contract resolution to creditor-equity conflicts.
10. Other covenants generally included in the category of financial statement signals are working capital requirements and interest coverage standards. As with financial statement related covenants, these provisions require the firm to invest in specified assets and serve as an early indicator of financial distress.
11. The primary focus of bond rating activity is whether the firm can service the debt in the amount and according to the schedule specified in the bond indenture. Accordingly, the rating agencies must consider all covenants of the indenture that will influence the ultimate payment stream to creditors in the event of a default.
12. The number of months prior to bankruptcy for each issue was weighted by the magnitude of the downgrade. Thus a downgrade in a given month relative to bankruptcy was assigned a greater weight if the rating dropped a full grade than if the rating declined by only half a grade. The value scale for a rating change was assumed to be linear, with a change from Aaa to Aa assigned the same weight as a change from Baa to Ba.

13. Eberhart, Moore and Roenfeldt (1990) document a wealth transfer of 7.6% of the total award to all claimants for a sample of 30 bankruptcy filings spanning the years 1979-1986.

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TABLE 1
SAMPLE DESCRIPTIVE CHARACTERISTICS

A. DISTRIBUTION OF SAMPLE ACROSS INDUSTRIES

<u>Two Digit SIC</u>	<u>Nature of Industry</u>	<u>Number</u>
00-09	Agriculture, Forestry, Fishing	2
10-19	Mining and Construction	21
20-29	Lumber & Chemicals	19
30-39	Machinery, misc. manufacturing	56
40-49	Transportation	9
50-59	Wholesale Trade	25
60-69	Finance, Insurance & Real Estate	13
70-79	Entertainment	13
80-89	Services	3

B. DISTRIBUTION OF SAMPLE OVER TIME

<u>Year</u>	<u>Number of Sample Bankrupt Firms</u>
1979	4
1980	3
1981	5
1982	21
1983	10
1984	6
1985	10
1986	21
1987	16
1988	9
1989	30
1990	26

C. MULTIPLICITY OF ISSUES BY FIRM

<u>Number of Firms</u>	<u>Number of Bonds Outstanding Per Firm</u>
53	1
17	2
5	3
7	4
1	5
2	6
2	7

TABLE 2

SECURITY ABNORMAL RETURNS SURROUNDING
THE ANNOUNCEMENT OF BANKRUPTCY

A. ABNORMAL EQUITY RETURNS

<u>Event Period</u>	<u>Mean Abnormal Return</u>
-15, 15	-0.105 (-2.389**)
-5, 5	-0.127 (-2.523**)
-2, 2	-0.136 (-2.498**)
-1, 1	-0.163 (-2.843**)
0, 1	-0.127 (-2.981***)
-15, -1	-0.057 (-2.536**)
1, 15	-0.136 (-2.343**)

B. ABNORMAL BOND RETURNS

<u>Event Period</u>	<u>Mean Abnormal Return</u>
-15, 15	-0.047 (-2.433**)
-5, 5	-0.045 (-2.222**)
-2, 2	-0.035 (-2.497**)
-1, 1	-0.063 (-2.888***)
0, 1	-0.071 (-2.914***)
-15, -1	-0.049 (-2.512**)
1, 15	-0.058 (-2.476**)

** indicates statistical significance at the 5% level.

*** indicates statistical significance at the 1% level.

TABLE 3

**FREQUENCY OF SPECIFIC COVENANTS PRESENT
IN THE SAMPLE**

COVENANT TYPE	ABSOLUTE FREQUENCY	PERCENT FREQUENCY
<i>Financial Statement Signals</i>		
Minimum Net Worth	8	5.0
Sinking Fund	125	77.6
<i>Restrictions of Asset Disposition</i>		
Dividend Policy	93	57.8
Limit On Asset Sales	28	17.4
Collateral and Mortgage	16	9.9
Merger Restrictions	20	12.4
<i>Dilution Control</i>		
Limit on Leasing	13	8.1
Limit on Additional Borrowing	37	23.0
Voting Modifications	149	92.5
Acceleration Clause	129	80.1
Callability	145	90.1
Limit on Lien	16	9.9
Defeasance	6	3.7

TABLE 4

BOND EXCESS RETURNS AND PROTECTIVE COVENANTS

$$CAR_{h,-15,15} = \beta_0 + \beta_1 COVEN + \varepsilon$$

<u>BOND COVENANT</u>	<u>β_0</u>	<u>β_1</u>	<u>R^2</u>	<u>F</u>
Financial Statement Covenants				
Minimum Net Worth	0.050 (1.418)	-0.034 (-0.276)	0.001	0.076
Sinking Fund	0.085 (1.354)	-0.053 (-0.710)	0.008	0.504
Asset Disposition Covenants				
Dividend Policy	0.080 (1.463)	0.063 (0.939)	0.014	0.882
Limit On Asset Sales	0.044 (1.187)	0.016 (0.190)	0.001	0.036
Collateral and Mortgage	0.050 (1.414)	0.033 (0.262)	0.001	0.069
Merger Restrictions	0.048 (1.396)	-0.162 (-1.179)	0.022	1.389
Dilution Control Covenants				
Limit on Leasing	0.051 (1.476)	0.079 (0.502)	0.004	0.252
Limit on Additional Borrowing	0.081 (1.259)	0.204** (2.302)	0.080	5.300
Voting Modifications	0.107 (0.694)	0.062 (0.396)	0.002	0.157
Acceleration Clause	0.183 (1.233)	0.152 (1.440)	0.033	2.073
Callability	-0.036 (-0.381)	0.096 (0.950)	0.015	0.902
Limit on Lien	0.047 (1.365)	0.002 (0.011)	0.001	0.001
Defeasance	0.486 (1.415)	0.063 (0.233)	0.001	0.054

** indicates statistical significance at the 5% level.

(1) COVEN is a dummy variable denoting the presence or absence of a particular covenant in a bond contract.

(2) $CAR_{h,-15,15}$ represents the cumulative excess bond returns over event days -15 through 15.

TABLE 5
SECURITY EXCESS RETURNS AND COVENANT GROUPS

A. BOND ANALYSIS

$$CAR_{b,-15,15} = \beta_0 + \beta_1 FINST + \beta_2 ASSET + \beta_3 DILUT$$

<u>Variable</u>	<u>Definition</u>	<u>β</u>	<u>t Statistic</u>
INTERCEPT	—	0.0032	0.849
FINST	Financial Statement Related Covenants	0.0497	1.512
ASSET	Disposition of Assets Covenants	0.0121	2.071**
DILUT	Control of Dilution of Bondholder Influence Covenants	0.1562	1.862*

Adjusted $R^2 = 0.10$

F = 1.463

B. EQUITY ANALYSIS

$$CAR_{e,-15,15} = \beta_0 + \beta_1 FINST + \beta_2 ASSET + \beta_3 DILUT$$

<u>Variable</u>	<u>Definition</u>	<u>β</u>	<u>t Statistic</u>
INTERCEPT	—	0.0107	1.043
FINST	Financial Statement Related Covenants	-0.1162	0.193
ASSET	Disposition of Assets Covenants	-0.1169	-2.260**
DILUT	Control of Dilution of Bondholder Influence Covenants	-0.1805	-2.460**

Adjusted $R^2 = 0.08$

F = 1.262

** indicates statistical significance at the 10% level.

*** indicates statistical significance at the 5% level.

- (1) $CAR_{b,-15,15}$ represents the cumulative excess bond returns over event days -15 through 15. $CAR_{e,-15,15}$ represents cumulative excess stock returns over event days -15 through 15.
- (2) FINST is a dummy variable indicating the presence or absence of financial statement related covenants.
- (3) ASSET is a dummy variable indicating the presence or absence of asset disposition related covenants.
- (4) DILUT is a dummy variable indicating the presence or absence of bondholder control related covenants.

TABLE 6

BOND EXCESS RETURNS SURROUNDING BANKRUPTCY AND THEIR RATING HISTORY

A. Number of Downgrades in the Two Years Preceding Announcement of Bankruptcy

$$CAR_{b,t,t+n} = \beta_0 + \beta_1 NUMDG + \epsilon$$

Event Period	β_0	β_1	Adj. R ²	F
-15, 15	-0.016 (-0.192)	-0.022* (-1.63)	0.07	9.42
-15, 1	-0.019 (0.003)	-0.003* (-1.65)	0.04	8.73

B. Value Weighted Downgrades in the Two Years Preceding Announcement of Bankruptcy

$$CAR_{b,t,t+n} = \beta_0 + \beta_1 VALUEDG + \epsilon$$

Event Period	β_0	β_1	Adj. R ²	F
-15, 15	0.040 (0.514)	-0.012** (-2.08)	0.12	10.42
-15, -1	-0.012 (-0.267)	-0.068** (-2.07)	0.11	12.71

* indicates statistical significance at the 10% level.

** indicates statistical significance at the 5% level.

- (1) $CAR_{b,t,t+n}$ = cumulative excess bond return over day t through t + n.
- (2) NUMDG is the number of downgrades for a given bond issue in the 24 month period preceding the announcement of bankruptcy.
- (3) VALUEDG represents the value weighted downgrades of each bond issue in the 24 month period preceding the announcement of bankruptcy.
- (4) t statistics are provided in parentheses.

AN EXPLORATION OF FAILURE IN GLOBAL COLLABORATIVE ALLIANCES: UNDERSTANDING ITS MAGNITUDE AND IMPLICATIONS

Veronica Horton*

Since the popularity of collaborative alliances in business appears to be on the rise, the potential for failed alliances may also be increasing. This paper explores patterns of failure in global collaborative alliances from a macro perspective. Results indicate that from 1985 to 1991, the majority of failed alliances were cross-border ones; that firms from North America were most likely to be involved in failed alliances; and that equity participation did not improve the potential for a successful alliance.

In recent years, collaborative alliances have become a legitimate, and often necessary, means of competing in today's global business environment. Many companies engage in multiple, cross-border alliances as they seek to expand or protect markets, develop new products and technologies, and minimize risks and costs. This phenomenon has spawned large amounts of research exploring such issues as the strategic motivations behind collaboration (Contractor, 1981; Harrigan, 1987; Ohmae, 1989; Jorde and Teece, 1989; Hamel et al., 1989; Lorange and Roos, 1991; Goldhar and Lei, 1991), how to choose a partner for collaboration (Berg and Friedman, 1980; Killing, 1983; Business International Corporation, 1987; Schillaci, 1987; Hamel, 1989; Hamill and Young, 1990), and the trends in alliance formation (Cory, 1982; Ghemewat et al., 1986; Osborn

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and Baughn, 1987; Morris and Hergert, 1987; Ellram, 1990; Terspstra and Simonin, 1990; Horton, 1992). One area that has received relatively little attention, however, is alliance failure, defined here to include alliances that are not successful because they have not met the objectives the participants set out to accomplish.

"Many companies engage in multiple, cross-border alliances as they seek to expand or protect markets, develop new products and technologies, and minimize risks and costs."

This paper seeks to explore patterns of failure in collaborative alliances in order to begin to comprehend the magnitude of alliance failure, the lower rate of success of certain types of alliances, the impact of the geographic location of the alliance on its chances for success and the nationality of the participants that are most likely to be involved in failed alliances. The objective of the study is to better understand the trends in collaborative alliance failure, and provide the basis for further research in the area. The paper begins with a review of the rather limited research on collaborative alliance failure and a discussion of the difficulty in defining exactly when an alliance has failed. Then, the results of this study exploring the patterns of alliance failure from 1985 to 1991 are presented. Finally, the implications of the study are considered and areas for future research are proposed.

This research defined collaborative alliances to be long-term agreements to mutually share assets for a specific purpose (Horton, 1992). Alliances meeting this definition included joint ventures, minority equity investments, non-equity investments and consortia. An alliance was considered to be a failure if (a) the alliance had been liquidated, taken over by one partner

or control had passed from one partner to the other (Killing, 1982, page 120), and (b) if there was some indication that the objectives of the alliance had not been fulfilled, and that at least one participant was not satisfied with the alliance (Beamish and Banks, 1987; Schaan and Beamish, 1988; Harrigan, 1988; Doz, 1988, Geringer and Hebert, 1991).

OVERVIEW OF THE LITERATURE

A collaborative alliance by definition involves two or more parties working together toward some mutually beneficial goal. Thus, the added complexities involved in operating collaborative alliances as compared to wholly owned subsidiaries have the potential to directly influence the success of the particular goal. Lorange and Roos (1991) suggested that since collaborative alliances involve more than one firm, decision making is more complex and slower than in wholly owned subsidiaries. Differing corporate cultures and strategic goals between participants also have the potential to complicate the operation of alliances. The researchers also noted that because some organizations have multiple, ongoing alliances, management may be overburdened, a factor that may be detrimental to the success of the alliance. The negative implications of alliance failure are potentially very high. In fact, Hamill and Young (1990, page 9) pointed out that "strategic alliance failure will have an adverse effect not only on short-run financial performance, but may threaten the participants' international competitive position." Yet the research on alliance failure has been rather limited thus far, perhaps because of the difficulty in characterizing exactly what constitutes a failed alliance. This section will initially examine various efforts at defining alliance success and failure and then consider empirical studies exploring alliance failure.

IN SEARCH OF A DEFINITION OF ALLIANCE FAILURE

The measurement of collaborative alliance failure has not received adequate attention from researchers, perhaps because of the difficulty in

defining exactly what makes an alliance successful or unsuccessful. Several researchers have chosen to consider alliance "instability" rather than actual failure (Franko, 1971; Gomes-Casseras, 1987; Harrigan, 1986, 1988). One of the first researchers to consider the instability of alliances was Franko (1971) who explored the survival rate of 1,100 joint ventures. Franko defined a joint venture to be unstable when equity control of the venture passed to one party, effectively creating a wholly owned subsidiary, or when one partner increased its equity share of the venture to a majority position (but the venture remained in operation), or when the venture was liquidated.

The definition of joint venture instability set forth by Franko (1971) was later used by Killing (1982) in his study of joint venture failure. Killing regarded those ventures that had been drastically reorganized or that had completely collapsed to be failures. Dymza (1988) qualified this statement arguing that "successful joint ventures are those that survive over a reasonable period of time, generally over eight years, and the major parties involved...perceive sufficient benefits in relation to cost" (page 403).

However, many researchers (Harrigan, 1986, 1988; Beamish and Banks, 1987, Schaan and Beamish, 1988; Doz, 1988; Hamel et al., 1989) suggest that collaborative alliance success and failure should not be measured in terms of longevity, as proposed by Franko, Killing, and Dymza. Rather, it has been proposed that collaborative alliance performance be assessed by each participant (Beamish and Banks, 1987; Schaan and Beamish, 1988; Harrigan 1988; Doz, 1988). According to this proposal, alliances in which each partner is satisfied should be considered successful, while alliances in which satisfaction is not mutual among participants should be considered unsuccessful. Killing (1983) employed managerial assessments of joint venture performance in his research, as well as measures of longevity. Interestingly, he found that both measures of failure gave the same result. Hamel et al. (1989) proposed that collaborative alliance quality should revolve around the change in competitive strength of each partner.

Geringer and Hebert (1991) attempted to clarify the reliability and comparability of various measures of collaborative alliance performance by empirically testing both objective and subjective measures of performance. Objective measures that were tested included survival rates, duration rates and instability rates. Subjective measures that were tested included levels of satisfaction with performance and perceptions of partner satisfaction levels. Like Killing (1983), Geringer and Hebert found that the objective and subjective measures of alliance performance were positively correlated, and thus concluded that "the use of objective measures as reliable performance surrogates may be justifiable" (page 258). Furthermore, the researchers found a significant correlation between one partner's satisfaction with an alliance and that partner's perception of the other partner's satisfaction, thus implying that one partner's response represents a reliable source for analyzing the success of an alliance.

The idea that a joint venture may in fact be a transitional form of governance, thus implying that survival rates are a poor indication of success, has been recognized in the literature in recent years (Harrigan, 1986; Hamel et al., 1989). Gomes-Casseras (1987) argues that while a change in ownership could be an indication that a joint venture is an inappropriate governance mode, it could also indicate that a transaction has been successfully completed. Hence, while the former case implies failure, the latter case implies success. Moreover, he pointed out that ownership changes may be influenced by government policies.

Berg and Friedman (1978) suggested that in some cases a joint venture may be terminated because of its success. In certain instances, a joint venture may prove to be extremely successful, and thus make up an increasingly large share of its parents' earnings. According to Berg and Friedman, companies may be uncomfortable with this type of situation and consider the possibility of merger. If merger goes against antitrust regulations, and one company cannot afford to purchase the other firm's equity in the venture, the joint venture may be divided between the participants, and thus is terminated in its original form.

According to a theory proposed by Gomes-Casseras, a determination of joint venture performance depends on how one interprets the role of a joint venture. If one considers it to be a temporary structure, existing in a sequence of events, then the change in ownership will be viewed as an adaptation to changing environmental conditions. However, if one merely associates change in ownership with failure, then the ownership change will be indicative of an error in the choice of governance mode, and will in effect, be a corrective strategy.

Koot (1988) suggested that it may be impossible to develop a common definition of alliance success. He argued that each participant will have different expectations of collaboration and thus, will evaluate alliance performance differently. Moreover, he proposed that since objectives are typically a result of negotiations, they represent feasible actions, and thus are not illustrative of success.

It has been proposed that the structural design of a joint venture may have an impact on its potential for success (Lorange and Probst, 1987; Berg and Friedman, 1978). This theory argues that many joint ventures fail because they lack the necessary properties to manage a changing environment. Lorange and Probst suggested that a careful analysis of the motivation behind a joint venture from the perspectives of both companies take place. Then, appropriate organizational forms and management practices can be chosen, potentially leading to a more successful venture.

Harrigan (1988) argued that mismatches in partner cultures, collaborative experience and expertise in relation to alliance activities can also contribute to alliance instability. These incompatibilities can affect expected partner contributions, lead to conflict and, ultimately, potential alliance failure.

Finally, Doz (1988) considered the use of collaborative alliances to block competitors. In this situation, the alliance itself may not succeed in terms of the proposed activities involved, but, if the alliance effectively slows the moves of competitors, then it should be considered valuable.

This section has considered various efforts at defining success and failure in alliances. The overview clearly demonstrates not only the difficulty in measuring alliance performance, but also indicates the problems that may arise in research exploring alliance performance. Since researchers have not agreed upon a common definition of alliance failure, caution must be used when interpreting and comparing research results. The next section explores studies analyzing the patterns of alliance performance.

EMPIRICAL RESEARCH ON ALLIANCE FAILURE TRENDS

A study of joint venture survival in multinational companies was done by Franko (1971). The study involved 1,100 joint ventures, each of which involved an American partner and a foreign partner. The research explored joint ventures during the years 1961 to 1968. Franko reported that 182 of the 1,100 joint ventures became wholly owned subsidiaries, 84 joint ventures were terminated either "because the American partner sold its equity stake to the foreign partner or because the venture was liquidated by mutual consent" (page 4). Finally, in 46 of 1,100 joint ventures studied, the joint venture remained in operation however, control passed from the foreign partner to the American partner. Franko termed these changes on ownership structure "joint venture instability" and subsequently addressed the topic of joint venture longevity. As mentioned in the previous section, Franko measured alliance success in terms of ownership transformations, and thus survival of the original structure.

Berg and Friedman (1978) studied joint ventures formed between 1924 and 1969 in American industry. Their research focused primarily on collaboration between American partners, and in particular on ventures in the chemical industry. Of the 123 joint ventures in the domestic chemical industry formed between 1950 and 1969, 50 were categorized as failures. Of the 50, 22 were sold to one partner, four were sold to an outside firm and two were merged into another joint venture operated by the same parent companies. Berg and Friedman reported that joint ventures

involving three participants were relatively unstable as compared to ventures involving more than three participants. Moreover, Berg and Friedman reported that joint ventures are unlikely to remain in their original form for more than a few years. Of a sample of 40 of the 50 joint ventures categorized as being failures, 12 lasted only three years or less, and all but 6 had a duration of 10 years or less.

Gomes-Casseras (1987) explored the instability of joint ventures formed between 1900 and 1975. Each joint venture studied involved a local partner and a multinational company. Of the 884 joint ventures involving less than 50% multinational company equity at their outset, 10.1% later became wholly owned subsidiaries, 1.8% were liquidated and 13% were sold. Hence, 24.9% of the joint ventures involving less than 50% equity participation by the multinational firm were considered to be unstable.

As multinational company equity participation increased to 50% joint venture instability rose. Six hundred seventy two joint ventures involved equal equity participation between partners. Of these joint ventures, 1.6% were liquidated, 12.1% were sold and 16.2% became wholly owned subsidiaries. Thus, total instability was found to be 29.9%. Similarly, as the multinational firm became the majority owner in the venture, instability continued to increase. The multinational firm had majority ownership in 822 joint ventures. Of these joint ventures, 2.1% were liquidated, 8.3% were sold and 26.9% became wholly owned. Hence, joint venture instability was found to be highest, 37.3%, when the multinational firm was a majority owner.

Gomes-Casseras suggests that caution be used in interpreting these results, pointing out that although in many cases ownership changed, control did not. Moreover, he proposes that while joint venture success can be associated with joint venture survival, there are instances when the termination of a venture indicates success. Further discussion of this point can be found in the previous section on defining collaborative alliance failure.

Joint venture performance in lesser developed countries was empirically tested by Beamish and Banks (1987). Each of the twelve joint ventures studied involved a local company from a lesser developed country and a multinational firm from a developed country. The quality of a joint venture was associated with the long-term viability of the venture. Following Schaan (1983), a joint venture was considered successful only if both partners were satisfied with its performance. Beamish and Banks found that under this classification scheme, seven of the 12 ventures studied could be considered successful, five could be considered unsuccessful.

An interesting finding by Beamish and Banks (1987) involved the debate of associating collaborative alliance success with alliance longevity (Franko, 1971; Harrigan, Gomes-Casseras, 1987; Geringer and Hebert, 1991). Beamish and Banks found no correlation between age of a joint venture and performance of a joint venture.

Kogut (1988) explored joint venture success in the United States and found that joint venture instability is at its highest in the fifth and sixth years of collaboration. Joint venture failures were found to be less common in ventures formed for manufacturing, financial services and/or the development of new products, and more common in ventures motivated by marketing and after-sales service. The legal form of joint venture termination differed according to the motivation behind collaboration. Joint ventures formed to develop new products were more likely to dissolve, while ventures to develop existing products were more likely to be terminated through acquisition. Finally, Kogut found that international joint ventures, defined to be ventures located in the United States involving a foreign partner, were more likely to fail than ventures involving only American partners.

Harrigan (1988) explored the relationships and similarities of joint venture participants and the effect of these two elements on venture performance. The data set used by Harrigan consisted of 895 joint ventures, formed across 23 industries from 1974 to 1985.

Harrigan found that 59.6% of the joint ventures in the data set represented a related diversification for the parent firms. Of these ventures, only 51.4% were considered to be successful from both parent companies' perspectives. Hence, it was concluded that related diversification does not necessarily imply joint venture success. However, Harrigan did find that horizontally related diversification is more likely to imply success than other types of ventures. Finally, Harrigan found that ventures that represented unrelated diversification for both parent companies were more likely to be considered unsuccessful from the parent's perspectives than other ventures.

Harrigan also studied the impact of the relationship between joint venture parents on joint venture performance. The results indicated that ventures are considered to be more successful by both partners when they are similar to each other. Hence, partners with similar cultural backgrounds, size and experience are more likely to be successful working together than firms that are dissimilar in these areas. Finally, Harrigan found that joint ventures involving activities related to the parents' activities were found to have a longer life than ventures in which activities were unrelated to participant activities.

In summary, researchers have explored alliance performance from various perspectives. It is difficult to draw specific conclusions from these empirical studies because each study was conducted using a different definition of failure and a different situation. For example, depending on which perspective was used, the magnitude of failure ranged from approximately 25% of the sample studied to as high as 49%. In addition, some of the studies considered variables such as industry, levels of economic development, the role of parent firms, or partner type, while others did not. Until there is a common definition of collaborative alliance failure, care must be exercised when comparing the results of these studies. The definition of alliance failure that was used in this study is presented in the next section on research methodology.

"[N]early two-thirds of the alliances that were identified as failures were found to be cross-border alliances"

RESEARCH METHODOLOGY

The purpose of this research is to explore the patterns of global collaborative alliance failure from a macro perspective. Data for this study were compiled by examining all issues of the *Wall Street Journal*, the *Financial Times*, and the *Japan Economic Journal* published during the period 1985 to 1991 announcements of failed alliances. The three publications were chosen to represent each area of the Triad countries of North America, Europe and the Pacific Rim, and thus provide a global perspective on alliance failure. Information was collected on the number of alliances that failed, where they failed, the nationality of the participants involved and the legal form of the alliance. If an announcement of a failure appeared in more than one publication, it was only included in the data set once.

As stated previously, collaborative alliances were defined as long-term agreements to mutually share assets for a specific purpose. The definition excludes agreements in which one partner does not share the benefits of the arrangement, agreements designed for investment purposes only and one-time agreements. An alliance was identified as a failure if (a) it had been liquidated, taken over by one partner or control had passed from one partner to another, and (b) there was some indication in the announcement of an alliance break-up that the objectives of the alliance had not been met. The definition thus incorporated the research on alliance failure discussed in the literature review section. The data collection process yielded 228

alliances, involving nearly 500 companies, meeting the definition of alliance failure.

It is important to recognize the limitations associated with this type of methodology. Specifically, the research explored the flow of alliances rather than the stock. Thus, the study does not identify the number of alliances in operation from 1985 to 1991, rather, it only identifies the number of alliances meeting the definition of failure during this time. Secondly, the data collection method involves the implicit assumption that the three publications under analysis report most alliance failures. However, since some companies may attempt to disguise failed alliances, this research probably under-represents the actual number of failed alliances. In addition, it is important to note that the publications may be biased to reporting on large, "newsworthy" firms at the expense of smaller, lesser known companies. Third, the research is limited because it does not explore interactions that may be occurring within or between research variables. Finally, the research is limited to the information provided in the public announcements of alliance failure.

RESEARCH FINDINGS ON PATTERNS OF ALLIANCE FAILURE

Since the popularity of using collaborative alliances as a means of doing business appears to be increasing, the potential for failed alliances was expected to likewise increase. The results of the research related to the magnitude of alliance failure however, indicated that while the number of alliances that failed between 1985 and 1986 rose, a sharp drop in alliance failure occurred between 1986 to 1989, followed by a small rise in failures between 1989 and 1991 (see Figure 1). Alliances that failed were found to be more likely to involve participants from different countries than partners from the same country. In fact, nearly two-thirds of the alliances that were identified as failures were found to be cross-border alliances (see Figure 2).

These results are particularly interesting in that during the time periods when the number of failures was rising, 1985 to 1986 and 1989 to 1991, more cross-border alliances failed than within-border alliances. However, during the time period in which the number of failures dropped, 1986 to 1988, the number of cross-border alliances that failed remained relatively steady, while the number of within-border alliances that failed decreased. This suggests that cultural and physical distance may play a role in the success rates of collaborative alliances, and that these added complexities make it more difficult to operate a cross-border alliance as compared to a domestic alliance.

Since national cultures have the potential to influence corporate cultures, one would expect that decision-making and management styles would be quite different between partners from different countries, while partners from the same country might have more similar corporate cultures. Furthermore, this suggests that the meshing of corporate cultures that is implied by a collaborative alliance would thus be more difficult to achieve in a cross-border alliance as compared to a within-border alliance, hence increasing the potential for cross-border alliances to fail. The results of this research provide support for this hypothesis and for previous studies that argued that physical and psychic distance can lead to difficulties in business situations (Prahalad and Doz, 1987; Doz 1988; Harrigan, 1988).

While cultural and physical distance associated with the nationality of the participants appeared to increase the potential for an unsuccessful alliance, the research results revealed that distance did not increase the potential for failure when the location of the failed alliance was considered. An examination of the location of each failed alliance (see Figure 3) indicated that more than three-quarters of the alliances that failed were located in the home country of at least one of the participants, while less than a quarter were located outside the participants' home countries in "third countries."

It was anticipated that the findings related to the location of failed alliances would reveal exactly the opposite results, that an alliance taking

place in a third country location would face difficulties arising from a lack of knowledge of the environment. Transaction cost theory argues that the ex ante costs of operating in another country include the costs of establishing a physical presence and of learning a new culture and market (Hill and Kim, 1988). Hence, it was expected that these additional costs would lead to greater difficulties for firms operating in third countries, and thus, potentially lead to failure. These findings suggest that knowledge of the environment may not be as critical as has been previously thought, or it may imply that firms are recognizing the difficulties of operating in third country locations and are making a greater commitment to third country ventures.

"[O]f all the alliances that were recognized as failures, 89% involved two partners, while just 11% involved three or more participants."

An examination of the participants involved in alliances that met the definition of failure revealed that most alliances that failed involved just two partners. In fact, of all the alliances that were recognized as failures, 89% involved two partners, while just 11% involved three or more participants. These results imply that firms that seek to reduce the challenges of multi-firm decision making and corporate culture influence by forming alliances involving just one other firm rather than multiple firms may not be achieving their objective, and may in fact be missing the opportunities that could arise from the inclusion of more firms in some types of alliances.

Companies from North America were found most likely to be participants in failed alliances. In fact, of the companies involved in failed alliances, slightly more than half were from North America, more than a

quarter were from Europe, while less than a fifth were from the Pacific Rim. Companies from the Pacific Rim, particularly those from Japan, have, through *kieretsus*, traditionally operated in cooperation with other companies, and thus, may be better able to cope with the challenges inherent in collaborative alliances. Thus, the relatively small number of Pacific Rim companies involved in failed alliances is not surprising. In contrast, the finding that companies from North America were most likely to be involved in failed alliances may be a reflection of the fact that North America firms have traditionally operated independently of other companies and may find it more difficult to work in an atmosphere of collaboration and cooperation.

The hypothesis that firms from North America have difficulty working in cooperation with other companies is further supported by the findings related to the combinations of partners involved in failed alliances. As was stated previously, the research revealed that alliances that failed were more likely to involve a participant from North America than a participant from either the Pacific Rim or Europe. In fact, nearly a third of the failed alliances under examination were between companies from North America, approximately a fifth were between firms from North America and Europe, and a seventh involved a North American company and a firm from the Pacific Rim. In contrast, alliances involving only European partners accounted for less than one seventh of the failed alliances under study, and alliances involving only Pacific Rim companies accounted for less than seven percent of all failed alliances.

Some researchers have suggested that a company's level of commitment to an alliance is related to its level of performance (Bell, 1990; Bronder and Pritzl, 1992; Mason, 1993; Spiegel, 1993). The results of this study, however, indicated that at least one form of commitment, an equity participation, may not improve an alliance's potential for success. It was found that nearly two-thirds of the alliances that were defined as being failures took the legal form of joint venture (see Figure 4). Non-equity agreements were the next most frequent form of alliance to fail, accounting for approximately one-fifth of all alliance failures. These results imply

that although equity involvement may give the impression of a higher level of commitment to an alliances, this does not ensure alliance success.

"[T]he finding that companies from North America were most likely to be involved in failed alliances may be a reflection of the fact that North America firms have traditionally operated independently"

The results related to equity involvement should be viewed cautiously. The methodology used in this research involved scanning various publications for public announcements of alliance failures. The number of failures reported by the newspapers may be considerably lower than the actual number of failures because firms may try to disguise their failures. The definition of failure used in this research required that at least one partner express dissatisfaction with the alliance because alliance objectives were not met. Accordingly, information on "disguised failures" was not collected. Since it is probably easier to quietly end a relationship that does not involve equity, it is probable that the number of non-equity alliances that failed during the time period studied is greater than the number reported.

In summary, this study tracked collaborative alliance failure over time. While it was concerned with the flow rather than the stock of alliance failure, it found that there was an upward trend in alliance failure during the years 1985-1986 and 1989-1991, but a downward trend in alliance failure from 1986-1988. The research also revealed that the legal form most likely to fail was the joint venture, that cross-border alliances failed

more often than within-border alliances and that participants from North America were likely to be involved in failed alliances.

IMPLICATIONS OF THE RESEARCH

This research focused on exploring the magnitude and patterns of collaborative alliance failure. Although if focused on the negative aspects of collaboration, its implications should be seen as positive since the findings of the study have the potential to alert companies to situations in which alliances may not be successful, and allow them to take steps to avoid or minimize the circumstances that may lead to failure.

The findings of this paper revealed that the number of failed alliances that crossed borders was nearly twice as great as the number of failed alliances that took place within borders, and that when the number of failed alliances was on the rise, the proportion of failed alliances that crossed borders also rose. This suggests that companies should exercise great care in the partner selection process. When choosing alliance partners, companies should not only consider the objectives of collaboration, but also the nationality of potential partners. This research has shown that companies appear to have more difficulty succeeding in cross-border alliances than in within-border alliances, and that the challenges presented by cultural and physical distance may lead to failure. Companies that select partners in their home country, and avoid collaborating with foreign partners, may have a better chance for a successful alliance. Extending or creating new agreements with current partners, whether domestic or foreign, may also increase success rates because the essential meshing of corporate cultures will have already been achieved through an existing alliance, thus minimizing a potential barrier to success in the new agreement.

In fact, this study suggests that all firms, and North American firms in particular, should strive to identify potential partners with which there is not only a strategic fit, but also a cultural fit; and that not only should the

objectives and expectations of the alliance be considered, but also operational issues. Bell (1990) proposed that two negotiating teams be used at the start-up of alliances. The first team should be concerned with objectives of the agreement while the second team focuses on the day-to-day operation of the alliance. Thus, both strategic and cultural fit become part of the alliance.

Companies from North America were found to be much more likely to be involved in failed alliances than companies from either Europe or the Pacific Rim. In fact, North America companies were found to have difficulty not only in collaborating with European or Pacific Rim companies, but also with each other. It appears that firms from North America involved in collaborative alliances are facing challenges beyond the anticipated difficulties in dealing with cultural and physical distance. This situation could negatively affect the global competitiveness of North American companies. If, as has been suggested by numerous researchers and practitioners, collaboration has become an important part of successful strategies, North American companies must learn how to collaborate, or risk their future competitiveness.

One potential reason for the lack of alliance success among companies from North America may be their perspective of why an alliance should be formed. Mason (1993) and Robert (1992) caution against using alliances as a means of correcting firm-specific weaknesses. In fact, Robert (1992) argues that an alliance in which both partners are trying to correct for weaknesses is sure to fail. If North American firms perceive that their competitiveness is being jeopardized, they may be attracted to collaborative alliances as a quick-fix solution, and thus, set themselves up for failure. Further research into the motivations and expectations behind collaboration is necessary to determine if this type of quick-fix mentality is contributing to the failure rate of alliances in which firms from North America participate.

A second potential reason behind the high failure rate of North American collaborators may be associated with commitment to, and trust

within alliances. Since American companies have traditionally operated independently of each other, they may have difficulty committing themselves to, and trusting firms that have formerly been viewed as competitors. However, if North American companies are to gain the benefits associated with collaboration, they should make a strong effort to commit themselves to the success of alliances. At the very least, efforts should be made to encourage managers to think of alliance partners as being essential to the long term well-being of their company. If management can be encouraged to view alliances as an essential part of a company's strategy, rather than as a separate, perhaps less important entity, more commitment to alliance success may be fostered.

Newman (1992) proposed that trust between partners can be increased if senior management who negotiate agreements remain involved with the alliance not only for the initial bargaining stage, but also for the planning and execution stages. This type of involvement by senior management may also act as a signal of commitment to the venture. Additionally, if an alliance involves foreign partners, it may be necessary for North American companies to provide managers with training in cross-cultural sensitivity. If such training is warranted, it should be provided at all levels of management including not only those managers involved in the day-to-day operations of the alliances, but also to senior level managers involved in making corporate wide decisions.

Finally, it should be noted that research on collaborative alliance failure is still in its infancy. Until common definitions of both collaborative alliance and alliance failure have been established, issues limiting research comparability will remain. By using a broad definition of collaborative alliance that included multiple forms of collaboration, this research has taken a broader perspective of alliance failure than previous studies, yet taken a narrower perspective of failure than other research through its more restrictive definition of when failure actually occurs. While this study did not consider topics such as whether certain industries and/or motivations are more likely to be involved in failed alliances, whether there is a relationship between alliance formation and alliance failure, or whether

alliance success rates depends on the achievement of primary objectives to the exclusion of secondary objectives, this exploratory study should, at the minimum, act as a signal to firms to act cautiously when forming alliances.

Figure 1

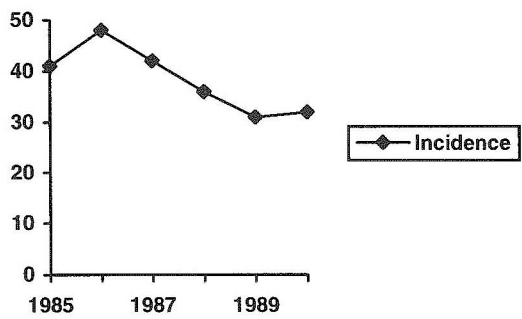


Figure 1
Collaborative Alliance Failure
1985-1991

Figure 2

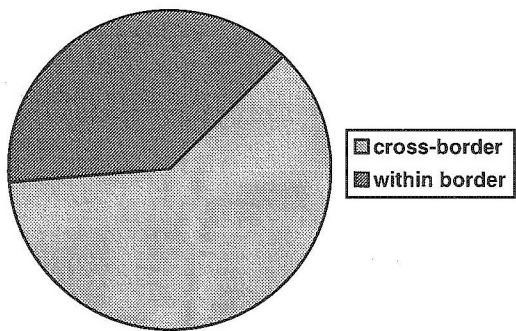


Figure 2
Type of Collaborative Failure
1985-1991

Figure 3

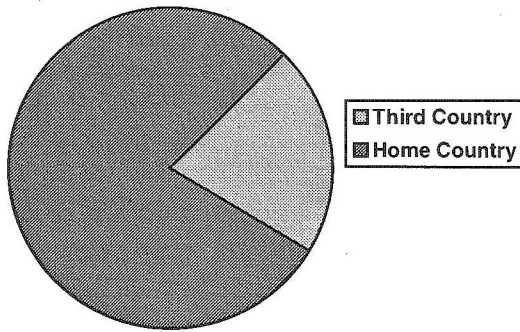


Figure 3
Location of Collaborative Alliance Failure
1985 - 1991

Figure 4

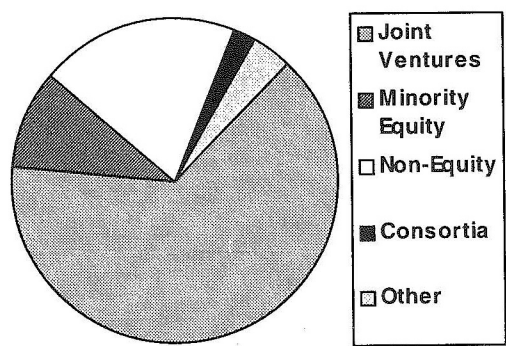


Figure 4

Legal Form of Collaborative Alliance Failure

1985-1991

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EMPLOYEE DRUG TESTING: SOME BUSINESS GUIDELINES[†]

Isaac Montoya*

Drug abuse costs American industry and the public an estimated \$100 billion a year. As a result, workplace drug testing programs have become a serious option for many companies. Federal guidelines regarding testing and laboratories are in place. The feasibility of designing a corporate drug testing program that is in compliance with these guidelines is the subject of this paper. Essential features of a corporate workplace drug testing program, viz., the policy, the testing process, and the laboratory contracted to test employees, are detailed from designs suggested in the current literature, and in compliance with federal guidelines. Developing a cost-effective corporate program that meets federal guidelines, stands up to court scrutiny, and is universally accepted by all employees is the objective of a drug testing program. The challenge can be met by building consensus, spelling out policy, maintaining high testing standards, and above all making rehabilitation of employees who test positive the ultimate goal of a drug-free workforce/workplace.

Each year, American businesses sustain substantial losses in the form of decreased productivity, absenteeism, accidents in the workplace, additional health care, loss of trained personnel, and theft. Many of these losses have been attributed to employee drug abuse. According to 1990 estimates, drug abuse accounts for annual losses of about \$50 billion to \$100 billion in U.S. companies (Finkle et al., 1990). Though direct evidence for links between many aspects of job performance and drug use

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are scanty, several empirical studies have confirmed a relationship between employee turnover and drug use (Normand et al., 1990; Zwerling et al., 1990, Kandel and Yamaguchi, 1987). Until 1986, however, when President Ronald Reagan signed Executive Order No. 12564 requiring random drug testing of selected personnel in federal agencies, many companies made no provisions for employee substance abuse prevention, detection, or treatment (Hawks, 1986).

The President's executive order was intended to make the federal workforce a model for a safe, drug free work environment that could be transferred to the private sector. Within a few years, Congress followed suit. In November 1988, the Drug-Free Workplace Act was signed into law, requiring all federal contractors to maintain drug-free workplaces, and making employee convictions on even minor drug-related charges a sufficient reason for termination of federal contracts (Axel, 1990b). Though the law did not mandate drug testing, it increased the potential cost of employee substance use substantially for a large number of major firms. Additional regulations designed to ensure enforcement of the law were promulgated by federal agencies, and by December 1989, the Department of Transportation required its contractors to develop mandatory drug testing programs. Since then, an estimated 90 percent of the Fortune 1000 companies have instituted some type of drug-testing program (Petersen, 1990).

An assessment of the prevalence of workplace drug testing based on the Fortune 1000 alone would be misleading. The likelihood that a company will have a drug-testing program increases with the size of the company (Hayghe, 1990), and with the presence of a union (Irwin, 1990). Since the bulk of the nation's business establishments are small, non-unionized businesses, survey results from the Fortune 1000 probably cannot be generalized to the private sector as a whole. It has been suggested that, while larger companies tend to combat personnel problems systematically, smaller firms tend to use an ad hoc, individualized approach, and that this explains the resistance of small firms to drug testing programs (Axel, 1990b). The cost of drug testing has been offered as an alternative

explanation. The average urinalysis test costs \$43 per person (Battagliola, 1993), which many small businesses believe they cannot afford (MacDonald, Wells, and Fry, 1993).

"[M]ore and more small and mid-size companies will probably adopt formal employee drug testing procedures, regardless of their own assessment of the benefits of employee drug testing."

However, regulations stemming from the Drug-Free Workplace Act of 1988 mean that potential corporate losses due to employee substance use can no longer be evaluated by productivity, employee turnover, and safety measures alone. For small and mid-sized companies who expect to do business with the federal government, the costs of illicit substance use by employees include the potential loss of business due to failure to comply with "drug-free workplace" guidelines. For some small firms, economic pressure to develop programmatic responses to employee substance use will result from direct dealings with federal agencies. Since the federal guidelines function as a symbolic model as well as a pragmatic intervention (Thompson, Riccuci, and Ban, 1991), it is also likely that clients who are themselves government contractors will exert pressure on business partners. As this pressure "trickles down" from the federal government, more and more small and mid-size companies will probably adopt formal employee drug testing procedures, regardless of their own assessment of the benefits of employee drug testing. There is some evidence that this is already occurring. In 1992, the rate of increase of drug testing was greatest among companies with fewer than 500 employees (Battagliola, 1993).

For all firms, federally mandated drug testing programs must be conducted within the bounds of both federal and state laws. Failure to address the legal and ethical issues surrounding drug testing may undermine drug testing programs, and may expose the company to litigation. However, the frequent changes in drug testing laws, their often hasty development in reaction to particular events, and their tendency to vary from state to state pose a problem for management. Another problem is the absence of a single clear model of a successful drug testing program. This does not mean that such programs are universally unsuccessful; rather, differences in evaluation methodology, program content, and industry type make "success" difficult to identify with precision (MacDonald, Wells, and Fry, 1993).

To sort through this maze, managers must proceed carefully. A drug testing program that is fair, effective, and economical entails a great deal of work, and initial expenditures may be daunting. Shortcuts, though tempting, can expose an organization to infringement of privacy, lack of consent, breach of confidentiality, or defamation claims. Despite these caveats, the past ten years of corporate experience with drug testing programs has yielded some broad guidelines, which are offered below.

PROGRAM AND POLICIES

Companies that utilize drug testing have come to recognize that testing is not a panacea for employee substance abuse (Harris and Heft, 1993). The effectiveness of drug testing depends on the quality of the prevention and treatment program to which it is attached. This may be one of the reasons why firms that test employees have a consistently greater overall involvement with substance abuse prevention and control than firms that do not employ drug testing (Axel, 1990b). Employee attitudes toward drug testing are mediated by concerns regarding privacy and rehabilitation (Stone and Kotch, 1989). These are best addressed through a combination of coordinated measures designed to control or reduce the impact of

employee substance use. According to Petersen (1990), a minimal employee drug testing program should include the following:

- Comprehensive policies governing the testing process;
- Adequate notice and educational programs for supervisors and all other employees;
- Chain-of-custody procedures to ensure tamper-proof samples and correctly matched results;
- Proven test methods;
- Strict confidentiality of test results; and
- An Employee Assistance Program (EAP), to provide counseling and rehabilitation.

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A successful drug testing program begins with a carefully crafted policy. Staff members of major departments, employees at every level in the organization, and legal counsel should be involved at every stage of policy development. Assuring adequate employee representation in the formation of drug testing policy may ameliorate ethical concerns regarding the legitimate limits of employer manipulation raised by some opponents of drug testing, since such manipulation is presumably more justifiable when it is mediated by the election of those subjected to it (Caste, 1992). According to Finkle and colleagues (1990), a written corporate policy may be simple or complex, but should contain the following:

- A statement reflecting the company's views on drug abuse;

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- A statement of need documenting any past occurrences and the company's desire to prevent such incidents in the future;
- A list of the company's responsibilities to employees, and designated departments implementing the drug testing program;
- A list of employee's responsibilities, such as showing up for work, being fit for duty (drug free), and willing to be tested for drugs;
- A list of procedures that will be implemented to reach company's policy goals; and
- A statement of penalties for violating the policy.

The development of a written policy, along with its dissemination throughout the firm prior to testing, reduces the legal risks cited by some smaller employers in opposition to testing programs. Courts usually interpret an organization's drug policy as an implied contract between employer and employee. The Drug-Free Workplace Act of 1988 also requires companies receiving federal contracts to file a written policy regarding drugs in the workplace. These factors and others underline the importance of a written policy in all cases where an employer seeks to intervene in employee drug abuse. Since the policy is often interpreted as an implied contract, the employer must closely follow the policy and ensure that it is understood by all employees. When employees are made fully aware of company policy, the risks of legal disputes or unnecessary attempts to overturn disciplinary actions are reduced.

Written substance abuse policies should clearly specify the span of control the company wishes to exercise over employee behavior. Traditionally, policies have covered only circumstances or behavior occurring during working hours or while employees are utilizing company property (Axel, 1990b). But the most popular forms of drug testing imply an interest in behavior outside these parameters, and this interest is the focus of much controversy (Caste, 1992). To alleviate such controversy, reasons for this interest should be clearly stated in the policy. The policy must also specify who will be tested, and when they will be tested. Criteria for testing selection should be as objective as possible, in order to avoid even a hint of discrimination. Typically, this should include staff at

all levels in the organization, and if some employees or applicants are exempt, reasons for exemption must be specified and documented. Unfortunately, these fairness issues are not always sufficiently appreciated by the drafters of corporate drug testing policies. An ethnographic study of personnel involved in the development of drug policies for power, broadcasting, phone, and railroad companies and unions found that a two-tiered system had developed, in which blue-collar employees were subject to random tests, while management was not (Irwin, 1990). In these companies, inconsistencies regarding the “who” and “when” of drug testing exacerbated tensions between blue-collar workers and senior staff.

Once the policy has been written, employees should be educated regarding the policy’s purpose, and the details of its implementation. This is best approached through scheduled education sessions. Unlike written materials, education sessions are difficult for employees to ignore, especially when attendance is required. Education sessions serve a number of purposes. The sessions give management a forum in which to argue for worksite control of substance use. When this information is presented in a non-judgmental, scientific manner, it can be most effective (Ogborne, 1988). The sessions allow management to gain allies among employees who are themselves concerned about the consequences of substance use, and to “warn” substance-using employees of the consequences of continued use, without compromising these employees’ anonymity. Education sessions also offer employers an opportunity to present treatment options as employee benefits, again without the risk of exposing those employees who may require treatment services. Finally, supervisor and employee questions regarding legal, ethical, or technical aspects of the drug testing policy may be answered in the education sessions.

After a “waiting period” wherein employees may prepare for implementation of the program, testing should begin. After an embarrassing series of police drug raids involving employees, Tropicana Products initiated a drug testing program with a 60-day window period prior to testing, during which employees could seek rehabilitation services at no cost to themselves. Evaluators have concluded that this waiting

period contributed to the program's success (Battagliola, 1993). Some evaluators recommend an anonymous "dry run" test, during which the extent of employee abuse may be determined, and employees may become accustomed to the process of testing (Hayghe, 1990). However, for many small firms, the cost of such a run may be prohibitive, and if clear written policies are effectively communicated, a "dry run" is probably unnecessary.

Once testing begins, employers may schedule drug tests at one or more of the following times:

- Pre-employment;
- When there is reasonable cause; and
- At random (Stennett-Brewer, 1988).

Pre-employment testing is the simplest program, and is the one used most frequently. Compared to an employee, a job applicant has fewer grounds upon which to base an unfair practice claim; a refusal to hire is easier to defend than a contested disciplinary action. Pre-employment testing may be the most cost-effective way to schedule drug testing. Statistics show that despite forewarnings about the company's drug testing policy, twelve percent of the job applicants still test positive (Finkle et al., 1990). An evaluation of drug detection procedures at Utah Power and Light revealed that pre-employment testing had saved that company \$300,000 in employee turnover costs during the first year of its existence (Crouch et al., 1990). Pre-employment testing succeeds in eliminating at least some of the loss associated with employee addictions, and incurs almost no legal liability.

However, it does raise questions regarding the diffusion effects of drug testing on society. Managers concerned about the effects of their decisions on the world outside the workplace should think carefully before implementing pre-employment testing. By the late 1980s, over three-quarters of private sector employers utilized pre-employment screening rather than screening of current employees (U.S. Department of Labor, 1989). Most applicants testing positive on pre-employment tests are not

hired (MacDonald, Wells, and Fry, 1993). Particularly in many blue-collar jobs wherein a majority of applicants are young, male, and without a college education, pre-employment testing may seem like a desirable alternative, but it could backfire in the long run for the same reasons it seems successful in the short run. By placing a group already at substantial economic and social risk out of the labor market, it may actually encourage a criminal career rather than treatment and rehabilitation (Thompson, Riccuci, and Ban, 1991). On the other hand, pre-employment screening programs do exist which allow the prospective applicant to re-apply after a period of treatment. It has been suggested that these may actually encourage users to seek treatment (Harris and Heft, 1993), though no hard data exist to support this.

“Reasonable cause” testing is a second alternative. Inappropriate behavior or unexplained variations in job performance levels are examples of “reasonable causes” for drug testing. Employers considering this approach should be aware that employees often interpret reasonable cause testing as a way of “singling out” or harassing particular individuals (Hayghe, 1990). Unless proceeding with great care, employers opting for reasonable cause testing run the risk of inadvertently stigmatizing individuals suspected of drug use, as a result of the gossip ensuing when such individuals are “called in” for testing. Should an employee testing positive choose to file a legal challenge to a reasonable cause policy, management must be prepared with more than the memory of a “reasonable cause.” All behaviors leading to “reasonable cause” testing should be stated in writing and communicated to all staff. Incidents involving such behavior should be fully documented, with reports signed by the employee in question.

Many employers opt for reasonable cause tests due to the perception that employees will favor this method over random testing. However, this may not be the case. Employees in one Fortune 500 company division endorsed random testing over reasonable cause testing, on the grounds that the latter eliminated the potential for supervisor harassment (Axel, 1990a).

Random testing is the third and most controversial testing alternative. Of all the testing alternatives, it is random testing that runs the greatest risk of incurring initial employee dissatisfaction. Although two 1989 Supreme Court decisions, *Skinner vs. Railway Labor Executives Association* (489 U.S. 602) and *National Treasury Employee's Union vs. Von Raab* (489 U.S. 656), upheld the use of random tests for government workers in safety-sensitive positions (Aalberts and Rubin, 1991), the legal issues surrounding random testing are far from resolved (Hodkin, 1991), especially where a "compelling public interest" has not been demonstrated. Random testing raises questions regarding the scope of an employer's legitimate right to determine employee behavior. It also raises questions regarding an employee's responsibility to avoid self-destructive behavior, not for his or her own sake only, but also for the sake of the company. Both of these questions are potentially divisive.

Ironically, random testing may be the fairest of the strategies reviewed here. Universal random testing does not discriminate between applicants and current workers, or between status levels within the company. Employees may not initially embrace this view, but the pre-testing measures discussed above, which include employee input in policy development and employee education regarding the reasons for testing, should ameliorate some of the potential antagonism surrounding privacy issues, which are the target of most random testing litigation (Harris and Heft, 1993). In situations where a corporate need for some kind of testing has already been communicated and accepted, an explanation of random testing which stresses its fairness in relationship to other testing strategies may balance employee concerns regarding invasiveness.

The primary legal issue in random testing is the separation of "public" and "private" spheres, and the relationship between that dichotomy and one between the corporate and the personal private sectors. While courts have upheld random testing, California law has held private employers to personal privacy standards that the federal Constitution only explicitly attaches to public institutions. All aspects of testing are limited by state laws in Iowa, Connecticut, and Montana; while Hawaii, Louisiana, and

Utah limit procedural aspects of testing (Harris and Heft, 1993). To be on the safe side, management should ensure that random testing programs meet constitutional tests for fairness, reasonableness, and due process. A significant minority of executives still tend to favor random testing only for employees in safety-sensitive jobs (Bureau of National Affairs, 1989), but this approach may prove to be a double-edged sword where safety-sensitive positions overlap with low-status ones.

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Fears of legal liability are periodically reinforced by business media, which refer to drug testing as a "corporate mine field" and a "legal crapshoot" (*Wall Street Journal*, 1989). However, the tendency for most courts to rule in favor of companies employing testing has encouraged private sector employers. As a result, periodic and random testing has increased 1,200 percent since 1987, according to the American Management Association (Anonymous, 1993). Since random testing is the focus of most drug testing litigation, the pros and cons of such a program must be carefully weighed. But the limitations of the other two approaches have probably also contributed to its increasing popularity.

THE CLINICAL LABORATORY

Even when test results are protected by strict confidentiality procedures, employees often react unfavorably to the real or implied accusation that they are drug abusers. If positive test results are faulty, they can lead to an undesirable breakdown in trust between employer and employee. If

positive test results are accurate, an employee may still decide to challenge them. In order to reduce the chances of the former occurrence, every employee of an organization must feel confident that testing detects abusers and protects the innocent. In order to instill such confidence, a reliable drug testing laboratory must be selected that is equipped to face tough legal challenges filed by employees who test positive but do not acknowledge illicit drug use. Clinical laboratories should meet stringent standards, and the criteria used to judge their performance should include certifications, staff qualifications, quality control procedures, and technical assistance.

Laboratories involved in federal testing programs are certified by the National Institute on Drug Abuse (NIDA). NIDA certification assures that test results are backed by the federal government. However, NIDA certification is expensive and complicated, and only about forty U.S. laboratories are NIDA-certified. Most laboratories are certified by private accrediting agencies, such as the College of American Pathologists (CAP) or the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO). Accreditation by one of these organizations will help management determine if the laboratory being considered meets generally accepted standards.

Laboratories should also be evaluated for accountability in the areas of specimen collection, transport, and handling. Laboratories should document every step of the process from receipt of sample to completion of the test, using special handling procedures. Documentation is particularly important for drug testing, since it is central to the "chain of custody" matching specimen to employee. If possible, firms considering drug testing should employ a competent consultant to review laboratory procedures. Where this is not possible, senior staff should themselves carefully review the chain of custody, with the assistance of legal advisors.

The laboratory staff must meet certain qualifications. The director should possess an advanced degree (i.e., M.D., Ph.D.) in medicine, biology, or a related field. All technical personnel should have had formal

hands-on training in drug testing procedures, and should be certified. Educational qualifications should be accompanied by rigorous quality control procedures. In addition to samples received from employers, specimens with known concentrations of drugs, and "unknowns" from an outside source, must be regularly tested.

The laboratory should be able to advise management regarding drug testing, and should also provide expert testimony in case of a lawsuit. It should be well-stocked with supplies necessary for specimen collection. If drug testing is to be an effective feedback mechanism for employees, they must be provided with quick, reliable results. Thus, laboratory efficiency is of paramount concern. The laboratory should be able to document and to maintain fast turn-around times from receipt of specimen to completion of testing.

Of course, the manager charged with choosing a laboratory cannot be expected to anticipate all potential laboratory-related problems, especially without prior experience in this policy area. Nor can a laboratory be accurately evaluated simply on the basis of claims, formal certification, or trial performance. Problems may not begin to form a pattern for some time, and by then the organizational investment in a questionable laboratory may have become quite substantial. Talking to colleagues in organizations that have already implemented a drug testing program may be the best means of avoiding such a Catch-22. Companies with a proven track record in managing employee drug testing programs may be a good source of laboratory-related information, especially as regards the performance of laboratories they have used.

The laboratory selection process may appear to be intimidating, but with a little research, the most common oversights can be avoided and a reasonable degree of security attained without consulting a pathologist or clinical laboratory scientist. In most cases, a certifying/accrediting agency will ensure that laboratory practices meet industry standards. An employer need only ascertain whether the laboratory selected is accredited, and inquire as to the reputation of the accrediting agency.

"[N]o procedure, however invasive, can eliminate the possibility that employees will 'cheat' on the test."

THE TESTING

There are three fundamental steps involved in standard drug testing procedures:

- Sample collection;
- Preliminary screening; and
- Confirmation testing (Petersen A., 1990).

Sample collection is critical, since most legal disputes focus on sample collection procedures. The Department of Health and Human Services (HHS) has issued specific guidelines to ensure the identity of samples collected, and to protect their integrity. According to the guidelines, samples must be collected in a secure, private location. Employees must present photo identification at the time of collection, and must also sign a statement confirming that the sample provided is their own. In order to reduce the chances of adulteration, the temperature of the urine specimen should be routinely checked.

The most controversial step in the specimen collection process recommended by HHS is direct observation of the evacuation process. Despite HHS approval, many legal counselors do not recommend the use of direct observation methods, arguing that they could attract invasion-of-privacy litigation. It has been observed that this places employers in a

double-blind, wherein a real reduction of the risk of employee tampering automatically entails an unjustifiably intrusive procedure (MacDonald, Wells, and Fry, 1993). However, other, less intrusive measures can be taken to discourage employee tampering. Organizations can reduce the chances that employees will tamper with samples by prohibiting unnecessary personal items (i.e., bulky coats and purses) in the collection area. Management can add bluing agents to toilets, and may turn off the taps in order to further reduce the chances of adulteration.

Nevertheless, no procedure, however invasive, can eliminate the possibility that employees will “cheat” on the test. A number of methods, from the use of diuretics, to the flushing of the system with water, to the adulteration of urine with salt, have all been reported to produce false negatives (Potter and Orfali, 1990), which has led some to suggest that casual users are more likely to be detected than hardcore users who have learned how to beat tests (Weiss and Millman, 1989). In most standard collection protocols, employees are required to list all prescription drugs and over-the-counter medications taken during the past seven days, thus enabling the testing laboratory to detect cross-drug reactions and to account for traces of drugs taken under doctor’s orders.

Once the sample is collected, the container is sealed, labeled, and dated by the collection personnel. It is also initialed by the employee providing the sample, as corroboration of its authenticity. The legal record of the sample from collection to testing, (i.e., the chain-of-custody), begins here.

Preliminary screening is the most efficient and inexpensive method available for eliminating samples that do not test positive for the drugs the company wants detected. Each company provides the laboratory with a specific panel of drugs it wants to be detected. The Federal Government focuses its tests on the following five classes of drugs:

- The marijuana metabolite;
- The cocaine metabolite;
- The opiates (morphine and codeine);

- Phencyclidine (PCP); and
- Amphetamines.

NIDA has established concentration levels and limits that define positive and negative samples. These levels have resulted in standardized drug testing guidelines used by all laboratories. They ensure that when drug levels remain below the NIDA levels, the results are reported as negative.

Despite established standards, preliminary screening does not eliminate the problem of cross-reactivity. When a sample tests positive during preliminary screening, a more sensitive confirmatory test should follow, using Gas Chromatography/Mass Spectrometry (GC-MS). GC-MS reduces the chemical compound to its constituent ions. Ions provide the compound with its unique set of fingerprints. Although considered extremely reliable, even the GC-MS test is not foolproof. Results can vary, depending on the specific techniques used. Some laboratories use the Selective Ion Monitoring (SIM) technique, which limits its examination to three unique ions. Others perform a full scan, which is almost foolproof, since it scans the entire compound (Petersen, 1990).

Management should consider the appointment of a medical officer as a final step in designing a fail-safe drug testing program. The medical officer should review results, establish an employee counseling and rehabilitation program, and monitor that program. A single positive drug test does not necessarily mean that an employee is permanently impaired, but could be the reflection of an emergent problem. Employee termination following a positive drug screen may be a tempting solution, but it is ultimately a short-sighted policy. In some circumstances, it may be illegal. By terminating an employee who abuses drugs, the company stands to lose its investment in the employee and may incur future recruitment and training costs of \$7,000 to \$10,000. A combination of well-defined policies and procedures, effective communication of these, and flexibility in their application, should accompany drug testing. A trained medical officer would know how to assess individual cases, and how to tailor

solutions to the circumstances under which an employee tests positive, without regard to the employee's status in the company.

CONCLUSION

Drug testing is not in itself a solution to employee drug abuse. Even when coupled with a comprehensive intervention program, it is not perfect. The institutionalization of drug testing in the private sector is barely past its infancy, and suffers from the absence of proven standards of success. Evaluation of drug testing programs is still rare, although NIDA has sponsored program evaluations in military, industrial, and transportation sectors. The implementation of a legally, ethically, and economically sound drug testing program stretches management's scientific and creative abilities to their limits. However, a successful drug abuse control program involving drug testing offers a number of advantages in a business environment troubled by disturbing substance abuse trends. Such a program skirts the adversarial relations between management and worker which characterized the classic "industrial" phase of world commerce.

Although drug testing is often criticized as a cold and inadequate substitute for an inclusive employee health benefits program, this conclusion is not supported by the empirical data. Rather, companies that employ drug testing are more likely to offer counseling and treatment services, Employee Assistance Programs, and prevention training than are non-testing companies (Axel, 1990b). This is hardly surprising. Substance abuse is a condition which often requires feedback before it can be confronted. A good drug testing program, integrated into an adequate substance abuse strategy, thus helps both employer and employee. When responsibly implemented, drug testing causes no undue hardship to employees, and chronic abusers are the only people who need fear the testing program.

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