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THE DOMINANT LOGIC: RETROSPECTIVE AND EXTENSION

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This paper briefly reviews some history of the concept of dominant logic, and then elaborates some of the ways in which the authors have further developed this concept in recent years. Discussion focuses on the dominant logic as a filter, on the dominant logic as a level of strategic analysis, on the unlearning (forgetting) curve, on the dominant logic as an emergent property of organizations as complex adaptive systems, and on the relationship between organizational stability and the dominant logic. Throughout emphasis is given to the inherent nonlinear nature of organizations and the mental models that they create.

All complex, adaptive systems—economies, minds, organisms—build models that allow them to anticipate the world.
John Holland

It is very gratifying to have our article, 'The dominant logic: A new linkage between diversity and performance,' (Prahalad and Bettis, 1986) chosen to be the first recipient of the *Strategic Management Journal* Best Paper Prize.¹ It is especially gratifying because of the professional stature the journal has been able to achieve and because of the many fine papers that have appeared in it and are deserving of this award. It has been over 13 years since we first discussed writing the paper and more than 7 years since the paper appeared in *SMJ*. During this period our thinking about the concept of a 'dominant logic' and the related concepts of strategic variety, cognitive variety, response speed, learning, and

unlearning have continued to evolve and develop. Whereas we focused the original article largely on the problems of diversification, the concepts we discussed were aimed at a larger class of strategic problems—problems which we have since spent considerable time studying. We have found these concepts to be useful in thinking about and studying strategic change in complex institutions of all kinds. Furthermore, we have found the concepts useful both in teaching MBAs and executives about change in complex institutions and in consulting with the executives of such organizations. We are indeed fortunate that others (e.g., Grant, 1988; Ramanujam and Varadarajan, 1989; Ginsberg, 1990) have also apparently found the ideas in the original paper useful.

The present paper will briefly discuss some historical aspects of the original article and then proceed to elaborate some of the evolution in our thinking since the article was completed.

Key words: Strategic change, cognition and strategic management, complexity in organizations

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SOME HISTORICAL PERSPECTIVE

The ideas in the paper took shape in preparation for a presentation at the Strategic Management

Society Conference in 1981 in Montreal. The paper was motivated by three factors. First, we felt that research in strategic management often ignored managerial explanations in favor of explanations based on purely economic forces. While not opposed to the economic approach, we felt that the balance between economic and managerial explanations was becoming dramatically skewed. Managers, if they appeared at all in research, were largely seen as a faceless abstraction. This did not square with our personal observations or our theoretical biases. An earlier paper written with Bill Hall (Bettis, Hall, and Prahalad, 1978) began to address this issue.

Second, we continued to observe the problems that managers had coping with major diversification moves. The business press seemed to supply frequent examples. Our own field research in several firms suggested how difficult highly intelligent managers found thinking strategically about businesses with different characteristics or their own core business when the industry structure changed significantly.

Finally, we felt that research on diversification and performance was settling into a pattern of regressing a set of economic and/or accounting variables and a measure of diversification on a return measure. This research built on the earlier important studies of Rumelt (1974) and Wrigley (1970). While new insights were being found, we felt the marginal value of such studies was declining. The time seemed ripe to strike out in a different direction.

At the Montreal SMS Conference our presentation got a positive response and we received some useful suggestions. Next we put our ideas into a working paper format and distributed it to a small number of colleagues. The reaction of our colleagues was decidedly mixed. While several were very supportive, a few others were highly critical. The colleagues that were supportive of the paper generally suggested improving the theoretical justification of the argument. We subsequently spent time acquainting ourselves with the cognitive psychology literature and buttressing the theoretical framework. Our more critical colleagues felt that the research was too qualitative, not empirical, not statistical, and/or divorced from the evolving paradigm for explaining diversity and performance. At least one suggested that we should just give up and start over with a 'more scientific

study'. Even though we were both untenured at the time, we decided to ignore these criticisms. We recognized that many journals probably would not seriously consider publishing the paper.

Our submission to *SMJ* resulted in two or three revisions. We got a great deal of useful advice and support from the editor and the referees. By the time the paper was published we were extremely proud of it.

By briefly recounting this history of the paper we hope to make three points. First, although there are always some pressures to conform to current research fashions in the field, there remains in Strategic Management a foundation of support for those who want to try new ideas or approaches. Second, untenured faculty should not hesitate to strike out in new directions if they firmly believe that their views are justified. Finally, we often hear that the *Strategic Management Journal* only publishes certain kinds of research. Most frequently mention is made of large-sample statistical studies or studies based in economic principles. This is simply not true, as our paper demonstrates.

THE DOMINANT LOGIC IN 1994

Since the original article, our thinking about the dominant logic has increasingly revolved around environmental-driven organizational change as opposed to diversification-driven organizational change. It is hard today to spend any time observing organizations or reading about them in the business press without seeing both the ubiquitousness of environmental change and the problems organizations face in responding to these changes. Interestingly, these shifts are coming at a time when the revolution in information technology is making huge amounts of information available to managers. Such data should make the task of sensing change and responding effectively to it considerably easier. However, this does not seem to be the case. What is seen instead are *information-rich but interpretation-poor systems*. In other words, systems that seem to confuse raw information or data with appropriate actionable knowledge.² Institutions

² In a sense the emphasis has been on generating larger data samples of the environment of the firm and of various

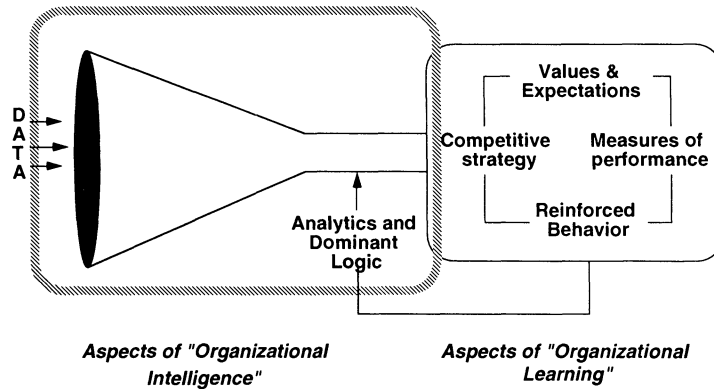


Figure 1. The dominant logic

seem to lack the intelligence to appropriately interpret and act on the flood of information.

This brief discussion suggests two key issues: (1) why many institutions find it so hard to change, and (2) why many institutions see change in the environment but are unable to act. Often the focus in trying to answer such questions has been on the surface architecture of the organization strategy, structure, and systems instead of underlying structures and foundations, such as the dominant logic, that support the visible features. We believe that the concept of dominant logic can be useful in developing a much more thorough understanding of these issues.

Figure 1 illustrates schematically how our thinking about the dominant logic has evolved in recent years. We have come to view the dominant logic as an information filter, shown here as a funnel.³ Organizational attention is

focused only on data deemed relevant by the dominant logic. Other data are largely ignored. 'Relevant' data are filtered by the dominant logic and by the analytic procedures managers use to aid strategy development. These 'filtered' data are then incorporated into the strategy, systems, values, expectations, and reinforced behavior of the organization. As shown, the dominant logic can be viewed as a fundamental aspect of organizational intelligence, whereas organizational learning can be thought of as occurring at the level of the strategy, systems, values, expectations and reinforced behaviors, which then shape the dominant logic through feedback. In other words this is not a simple case of one-way causality, but involves a feedback loop that ties the traditional variables to the dominant logic in an interactive fashion. The two are mutually interdependent. (This suggests that simple linear models that seek somehow to relate one to the other in a simple causal fashion are not likely to be appropriate.⁴)

performance measures for organizational subunits. Furthermore, these data are increasingly made available in 'real time' to large numbers of executives across networks of microcomputers and workstations. However, such huge data flows are largely useless unless they can be transformed into a form that boundedly rational managers can digest and act on. What appears to be needed is not more data, but better frameworks in the sense of sufficient statistics that can facilitate interpretation.

³ In the original article (Prahalad and Bettis, 1986: 490) we defined the dominant logic 'as the way in which managers [in a firm] conceptualize the business and make critical resource allocations decisions' We also noted that it was stored via shared schemas, cognitive maps or mind sets and was determined by the managers' previous experiences. Furthermore, we suggested that it was largely unrecognized by the managers themselves. In addition to and overlapping these discussions from the original article, we often refer today to belief structures, and frames of reference as being intimate aspects of a dominant logic.

⁴ Linear statistics assume that cause and effect (or associations of variables) are proportional. Sometimes nonlinear effects can be linearized by a transformation or approximated by assuming only a linear effect. However, this is not generally the case. For complex situations such as that shown in Figure 1, more general techniques are needed or the efficacy of the resulting model may be seriously compromised. In general the differential equations that describe the dynamics of a system (such as Figure 1), even a very simple system, result in nonlinear solutions. Because linear statistical methods are much less computationally intensive than nonlinear methods, they became established in the era calculating machines and relatively slow and expensive computers. Recently, however, inexpensive computing time has become a reality and nonlinear methods are gaining in popularity. For an introduction to such methods see Gallant (1987). It is interesting to

In parallel to the concept of intelligence in humans, an organization's intelligence is the ability of the organization to learn. What an organization is able to learn can be transformed into organizational knowledge. There has been an increased interest in recent years in organizational learning and organizational knowledge, but the concept of organizational intelligence remains elusive. Organizational intelligence is certainly not the sum or average of individual executive or employee intelligences. If this were so, then IBM would probably be the most intelligent organization in the world—the one most capable of learning. As shown in Figure 1 the dominant logic puts constraints on the ability of the organization to learn. In other words it is a primary determinant of organizational intelligence. Heuristically, we have found it useful to think of the bandwidth (or aperture size) of a particular dominant logic as a measure of the tightness of the constraints imposed. The problem organizations often face can be conceptualized as increasing the bandwidth or tuning (moving) the filter to a different band (location).

LEVELS OF ANALYSIS

To further develop the concept of a dominant logic as we think of it today it is useful to use the medical analogy summarized in Table 1. Many times the field of Strategic Management seems composed of a set of mutually exclusive concepts. The choices in understanding strategy are an 'either/or' selection. One framework or another must ostensibly be selected from among a variety. Although some choices must be made, the situation becomes more clear when one thinks in terms of the levels of analysis and their interaction.

Table 1 shows a simplified comparison between different levels of analysis in a hypothetical medical diagnosis and different levels of analysis of business strategy. The comparative analysis in this table was suggested to us by a similar analysis developed by Gary Hamel of the London Business School. At the first level the analysis is primarily of symptoms. In the medical example a patient complaining of chest pains and numbness in his

arm takes aspirin to no avail before visiting his family doctor. After a standard examination (blood pressure, etc.) the physician suspects serious cardiovascular problems and refers him to a cardiologist. This situation can be compared to a business experiencing low profits. In the hypothetical example managers seek 'quick fixes' until, under pressure from the board of directors, a consultant is hired to assess the problem.

At the second level of analysis, as shown in the table, a cardiac catheterization shows serious occlusion of the coronary arteries. Hence, the cardiologist recommends bypass surgery. By comparison in the business strategy case, the consultant develops a thorough five-force industry analysis. Because of the poor features of industry structure that are revealed, the consultant recommends diversifying out of the dependence on this industry.

At the third level of analysis the cardiologist identifies lifestyle (smoking, bad diet, lack of exercise, stressful occupation) as a fundamental cause of the coronary artery disease and recommends substantial lifestyle changes. By comparison, as shown in the table, the consultant finds that organizational systems and structure have resulted in a series of poor strategic decisions. For example, the reward system may be motivating various kinds of dysfunctional behavior and decisions (e.g., Kerr and Bettis, 1987; Gomez-Mejia, Tosi, and Hinken, 1987; Gomez-Mejia and Balkin, 1992).

At the fourth level the cardiologist finds that the patient's father and grandfather suffered early onset of coronary artery disease and concludes that genetic factors may be important. In other words the patient may have a genetic predisposition to developing coronary artery disease. Genetic factors interact with various aspects of lifestyle in a complex fashion. Interestingly there is no direct test to determine genetic predisposition to coronary disease, but research is ongoing and the expectation is that some day genetic screening will be able to identify those individuals with a predisposition to coronary disease (and several other life-threatening diseases). These individuals could then receive early counseling about lifestyle changes. By analogy, it is at a parallel level of analysis, as shown in the table, that the dominant logic acts. In other words, the dominant logic can be seen as similar to a genetic factor. Its influence is pervasive. It permeates the organization, yet it is invisible. It predisposes the firm to certain kinds of strategic problems and

conjecture that as nonlinear statistics diffuse in the academic community, some early results developed using linear statistic models may be significantly revised, or rejected.

Table 1. Dominant logic and levels of analysis: A medical analogy

Medical diagnosis	Business strategy analysis
1. Patient complains of chest pain and numbness in arm. Patient takes aspirin to no avail. Under pressure from spouse a visit with doctor is scheduled. Physician concludes patient may be seriously ill and refers to a cardiologist.	1. Business experiences low profits. Managers seek 'quick fix' solutions. Under pressure from board of directors a consultant is finally hired to assess problem.
2. A catheterization of the coronary arteries shows serious occlusion. Cardiologist recommends bypass surgery.	2. A five-force industry analysis discloses a poor industry structure. Consultant recommends diversifying out of dependence on this industry.
3. Cardiologist identifies lifestyle (smoking, bad diet, stress, no exercise) as a fundamental cause of the coronary artery disease. Lifestyle changes are recommended.	3. Consultant finds that organization systems and structure have resulted in series of poor strategic decisions. Better organizational structures and systems are recommended.
4. Physician finds that patient's parents and grandparents all suffered early-onset coronary disease, indicating genetic factors may be important. Patient may have a predisposition to coronary heart disease. Genetic factors are thought to act by interacting with lifestyle in causing coronary disease. (Research is currently underway to develop a direct genetic test for predisposition to coronary disease.)	4. <i>Dominant logic operates at a similar level to genetic factors in causing strategic failure. Dominant logic can be partially identified by thoroughly interviewing top managers about basic views of strategy and the industry. It predisposes a firm to certain problems and often interacts with organizational structure and systems in causing strategic problems. (Research is underway to develop better methods of directly assessing dominant logic.)</i>

often interacts with organizational systems and structures (as shown in Figure 1) in a complex way in causing these problems.

One of the clearest examples of its pervasive yet invisible character that we have encountered is in the familiar university setting. Most faculty and administrators of major universities invariably believe that in any discussion of the purposes of a university the liberal arts must play a central role. This assertion is inevitably strongly defended on the basis of appeals to authority, tradition and the practice of other universities. The fact is that there is no compelling reason why the liberal arts have to be central. There are no stone tablets to this effect, yet it permeates thinking about curriculum, fund raising and mission. In the business world, IBM is an excellent example in which the dominant logic for years revolved around a set of unseen assumptions about the centrality of the mainframe business. At IBM this thinking became embedded in the strategy, reward system, promotion preferences, and resource allocation system so strongly that a catastrophic crisis was necessary even to

begin dislodging it. (See Ferguson and Morris, 1993, for an interesting discussion of the pervasive influence of the mainframe logic at IBM.) This example raises an issue central to the dominant logic: the unlearning curve.

THE UNLEARNING CURVE

There has been a great deal written about organizational learning (for surveys see Hedberg, 1981; Shrivastava, 1983; Fiol and Lyles, 1985; Levitt and March, 1988; Huber, 1991). The concept of organizational learning has often been mathematically embodied in the learning curve (see Yelle, 1979 for a survey). In general it is assumed that the learning curve is drawn on 'a clean sheet of paper' in that learning takes place in a neutral environment. This is seldom if ever the case. There is often previous learning 'drawn' on the paper that may inhibit the new learning process. This leads to the concept of unlearning.

A small amount has also been written about unlearning (e.g., Argyris and Schon, 1978;

Starbuck and Hedberg, 1977; Hedberg, 1981; Nystrom and Starbuck, 1984), but the concept has largely languished. The dominant logic makes clear that before strategic learning of the kind discussed above can occur, the old logic must in a sense be unlearned by the organization. In this sense there is an unlearning (or forgetting) curve just as there is a learning curve.⁵ Before IBM could begin developing a new strategy, the mainframe logic needed to be partially unlearned or forgotten. Furthermore, as preceding discussions and Figure 1 make clear, significant changes needed to be made in the organizational structure and systems, since they are tightly coupled to the dominant logic and embody parts of it. This need to unlearn may suggest why new competitors often displace experienced incumbents in an industry when major structural change occurs (e.g., the personal computer revolution). The new entrants in essence are starting with a clean sheet of paper and do not have the problem of having to run down an unlearning curve in order to be able to run up a learning curve.

What seems clear is that strategic learning and unlearning of the kind involving the dominant logic are inextricably intertwined. The exact nature of the relationship remains undetermined and dependent on the individual circumstances, but it is possible to make some general statements about its form. First, it seems apparent that the amount of learning in a particular period must be a function of the amount of unlearning in the previous period:

$$L_t = f[F_{(t-1)}]$$

where L_t = learning in period t ,
 $F_{(t-1)}$ = unlearning in period $t-1$,
 and ' t ' can be thought of as small.

It should be noted that the function f remains unspecified and may be complex. For example, unlearning in a particular period does not necessarily imply that learning will occur in the next period or that it will be proportional to the unlearning in the previous period. Hence the smooth logarithmic functional form usually associated with learning curves in general (see Modis,

1992, for a discussion of these familiar 'S curves') seems unlikely for this type of strategic unlearning and learning. Furthermore, our experience suggests that both learning and unlearning in the case of strategic change involving the necessity to change dominant logic is likely to occur in discontinuous bursts. It is also worthwhile to note that in general strategic unlearning/learning is not nearly as efficient as 'clean sheet' learning. (Reflecting on the IBM example above should be convincing on this point.) We would expect very little unlearning to take place for a long time, before significant learning could occur. In fact some organizations may find it impossible to unlearn at all and may fail.

Viewed in this fashion the focus shifts from learning to unlearning in the case of strategic change. There have been many investigations of various types of organizational learning, but none of the kind of unlearning at the level of dominant logic we are discussing. Hopefully such research would generate useful guidelines for managers. One prescriptive line of attack that we believe holds promise would be to consider how one might construct important organizational events that challenge the existing dominant logic.

THE DOMINANT LOGIC AS AN EMERGENT PROPERTY OF COMPLEX ADAPTIVE ORGANIZATIONS

Some problems are just too complicated for rational, logical solutions. They admit insights, not answers. (Jerome B. Wiesner, President Emeritus of MIT)

Although there is no generally accepted definition, the term 'complex systems', as Waldrop (1992: 11) notes, usually refers to systems in which a great many independent agents are interacting with each other in a great many ways. Examples include living cells, the brain, traffic flows in a city, and economic systems. Organizations obviously represent complex systems. In fact, the sum of research done in the twentieth century shows that organizations are complex systems, where individual behaviors of managers and employees interact in complex ways with each other and with the environment of the organization. Within any system various properties emerge that are not a

⁵ Sally Fowler has made the interesting suggestion that it may be that unlearning is just a special case of learning in that something the organization learns triggers it to change its dominant logic.

simple property of the constituent agents. In other words reductionism is not a viable approach to studying complex systems. Knowledge of the constituents is not knowledge of the whole or major parts. As Polanyi (1958) put it: 'Take a watch to pieces and examine, however carefully, its separate parts in turn, and you will never come across the principles by which a watch keeps time.' Emergent properties of organizations include political coalitions, values, informal structure, and suboptimization. We believe that the dominant logic is another important emergent property of organization.

Complex systems generally exhibit nonlinear behavior (Gleick, 1987; Cambel, 1993; Gulick, 1992). In other words, cause and effect are not proportional. A large cause might have a minimal effect; while conversely a small cause can have a huge impact. In the book *Chaos*, Gleick popularized the concept of nonlinearity. He gave a dramatic example of the 'butterfly effect,' wherein a butterfly flapping its wings in one part of the world may have a dramatic effect on the weather in another part of the world several days later. This is a striking example of the *sensitive dependence on initial conditions* that nonlinear systems exhibit. Sensitive dependence on initial conditions simply implies that a small perturbation in the system can have a dramatic effect on later results. (Daft and Lewin, 1990, note the inherent nonlinear nature of organizations.) The effect of entrepreneurs or other key managers long after they have died or retired is likely an example of sensitive dependence on initial conditions. Consider, for example, the impact of Alfred Sloan on General Motors long after he died. We believe that the dominant logic is inherently nonlinear, with impact often out of proportion to its inherently subtle nature.

A second property of complex systems is that they seek to adapt to their environments (Holland, 1992; Waldrop, 1992). We believe that the dominant logic is one emergent property of complex organizations seeking to adapt. Interestingly, it provides a set of heuristics that simplify and speed decision making. This inherently results in 'adaptive ability,' so long as changes in the underlying logic are not necessary. It allows the organization to 'anticipate' the environment. However, this adaptive ability has limitations and carries with it toxic side effects. The organization anticipates that the environment will be very similar to the current and past environment, not necessarily the actual

future environment. The dominant logic is in a sense a local optimum that represents an equilibrium solution. However, it is not a global optimum, and when conditions change a new local optimum (new dominant logic) must be developed quickly (including unlearning the old dominant logic) if the organization is to survive.

The situation is not unlike natural selection. A species may be well adapted to a certain ecology, but changes in this ecology, such as a new predator, will threaten survival unless mutation can 'quickly' produce new characteristics that ensure survival. This analogy can even be carried further by considering the dominant logic to lie metaphorically at the genetic level as in Table 1. However, there is at least one aspect in which biological and organizational evolution are very different. The length of time for which a species has been in equilibrium does not affect its ability to adapt when ecological change occurs. By contrast, the longer a dominant logic has been in place, the more difficult it is likely to be to unlearn. Time spent by an organization in equilibrium is an important organizational variable.

So, in sum, what we have is the dominant logic as an adaptive emergent property of complex organization. Complex adaptive systems have recently been the subject of significant scientific scrutiny (e.g., Waldrop, 1992; Holland, 1992; Kauffman, 1993; Nicolis and Prigogine, 1989; Prigogine and Stengers, 1984; Anderson, Arrow, and Pines, 1988⁶).

There are many potential ties between organizations as complex adaptive systems and the concept of dominant logic, but one of the most interesting concerns the concept of unlearning. Work on systems far from equilibrium is suggestive of conditions that facilitate unlearning. Complex systems near equilibrium tend to perform in a repetitive fashion. As Prigogine and Stengers (1984: 14) and others point out, when such a system is in equilibrium it acts as though it is 'blind'. Its behavior becomes repetitive. However, as it moves to far from equilibrium

⁶ It is interesting to note that the first two editors of this volume are Nobel Prize winners in Physics and Economics respectively. Furthermore, the volume calls into significant question much of modern economic theory that is based on the concepts of equilibrium and linear models. See especially the three papers by Arthur, Holland, and Kauffman respectively in addition to the 'working group summaries' section and the 'summaries and perspectives' sections.

states, it becomes 'able to perceive, to "take into account" in its way of functioning, differences in the external world.' So it can be argued that complex systems become much more adaptive as they move far from equilibrium. This is particularly interesting since as discussed in Prahalad and Bettis (1986: 498) changes in the way organizations solve significant new problems are triggered by substantial problems or crises. In other words organizational unlearning occurs as the organization moves substantially away from equilibrium. The parallel is striking and worthy of further investigation.

One way of conceptualizing organizational equilibrium and unlearning/learning is shown in Figures 2a, b and c. The conceptual graphs in this figure show organizational stability plotted against a composite environmental variable. This composite environmental variable is assumed to be composed of the major environmental variables combined in some fashion. Different points on the x-axis represent different environmental conditions. The organization is shown as a small ball or marble resting in Figure 2a at one of the low points or equilibria of the stability function. This equilibrium corresponds to the current dominant logic which is matched to the current environment facing the firm.

Small displacements from equilibrium, corresponding to small changes in the environment, will result in the firm settling back (or rolling back) into the 'equilibrium well' or dominant logic it currently occupies as shown in Figure 2b. Under such circumstances the match between dominant logic and environment may deteriorate, but because of the small differences the current dominant logic may continue to be useful. However, if there are large enough changes the firm may get far enough from equilibrium to surmount the hill and arrive at a new equilibrium from which a new dominant logic will develop as shown in Figure 2c.

The height of the hills may be considered to be a function of the strength of the dominant logic. (In a sense, the longer a firm remains in equilibrium, the deeper the valley becomes.) Alternatively, the firm may be unable to surmount the barrier and be drawn back toward the old dominant logic (or equilibrium) that is inappropriate for the current environmental circumstances. Such a situation would, of course, likely lead to failure of the firm as a competitively

viable entity. This approach leads one to wonder what actions a firm might take in order to assure that the 'hills' in the stability function around the current dominant logic do not get 'too high.' Answers to this question could have great practical significance. One suggestion here is that the organization clearly differentiate between financial performance and strategic performance, and not underemphasize strategic performance. Current financial success may limit any significant challenges to the dominant logic, although strategic performance (on which future financial success is based) may have significantly deteriorated due to environmental changes. Again, we would argue that IBM provides an instructive example.

CONCLUSION

There is a great deal of ferment in science today. Part of this ferment has to do with the recent development of exciting new results in the study of nonlinearity and complexity. In fact, what some have called the 'science of complexity' seems to be evolving. Complex adaptive systems are very different in substance and require different methods for their study. Consider, the following from Holland (1992):

Despite surface dissimilarities, all complex adaptive systems exhibit a common kernel of similarities and difficulties, and they all exhibit complexities, that have until now, blocked broadly based attempts at comprehension:

All complex adaptive systems involve large numbers of parts undergoing a kaleidoscopic array of simultaneous nonlinear interactions. Because of the nonlinear interactions, the behavior of the whole system is not even to an approximation, a simple sum of the behavior of its parts. The usual mathematical techniques of linear approximation—linear regression, normal coordinates . . . and the like—make little progress in the analysis of complex adaptive systems. . . .

The impact of these systems in human affairs centers on the aggregate behavior of the whole. Indeed, aggregate behavior often feeds back to the individual parts, modifying their behavior. . . . The interactions evolve over time, as the parts adapt in an attempt to survive . . . Standard theories in physics, economics and elsewhere are of little help because they typically concentrate on 'end points,' whereas complex adaptive systems 'never get there.' Improvement is usually much

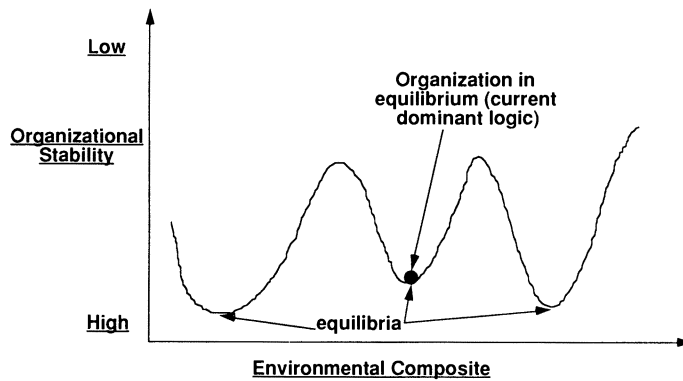


Figure 2a. Organizational stability

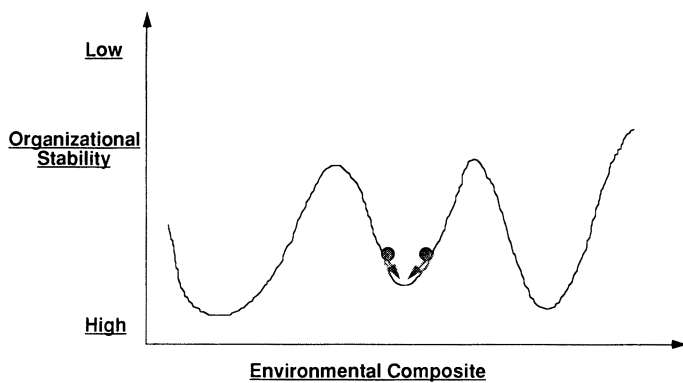


Figure 2b. Small fluctuations return to original equilibrium

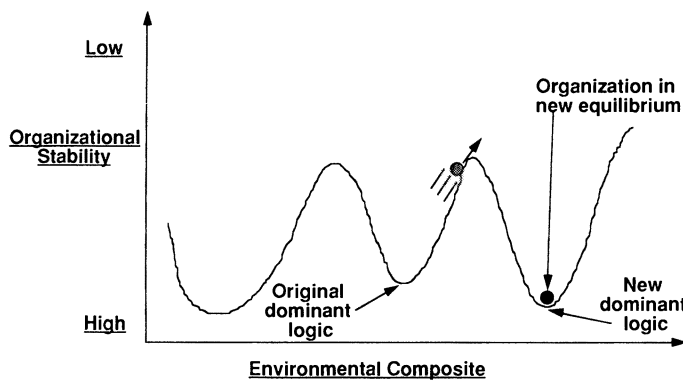


Figure 2c. Moving far from equilibrium allows firm to establish new equilibrium

more important than optimization. When parts of the system do settle down to a local optimum, it is usually temporary, and those parts are almost always 'dead,' or uninteresting if they remain at that equilibrium for an extended period.

Complex adaptive systems anticipate. In seeking

to adapt to changing circumstances the parts develop 'rules' (models) that anticipate the consequences of responses. . . . The effect of local anticipations on aggregate behavior is one of the aspects of complex adaptive systems we least understand. (pp. 184–185)

The dominant logic seems to fit comfortably into the domain of emergent properties of complex adaptive systems. If organizations really are complex adaptive systems, and we believe that they are, then there are exciting times ahead in Strategic Management with new topics and new approaches for research. We hope that the concept of dominant logic can play a role in this new research.

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