

ORGANIZATION DESIGN

The Evolving State-of-the-Art

By

Richard M. Burton

Bo Eriksen

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Charles C. Snow



Springer

ORGANIZATION DESIGN

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Dedication

*This book is dedicated to John
Forsyth who sadly passed away
while the book was under
preparation*

Contents

Dedication	v
Contributing Authors	ix
Editor's Introduction	xi
Part 1: Theoretical and Practical Issues	1
The configurational approach to organization design: four recommended initiatives CHARLES C. SNOW, RAYMOND E. MILES, AND GRANT MILES	3
The contingency theory of organizational design: challenges and opportunities LEX DONALDSON	19
Part 2: Fit, Contingency, and Configuration	41
Examining the relationship between trust and control in organizational design JENS GRUNDEI	43
Structural limitations in organizational design THOMAS GULLØV	67

The many faces of fit	85
TORBEN ANDERSEN, BO ERIKSEN, JEANETTE LEMMERGAARD, LINE POVLSEN	
The fit between national cultures, organizing and managing	103
MIKAEL SØNDERGAARD	
Part 3: Design and Performance	123
Organizational design, learning, and the market value of the firm	125
TIMOTHY N. CARROLL AND STARLING D. HUNTER	
New developments in contingency fit theory	143
PETER KLAAS, JØRGEN LAURIDSEN AND DORTHE DØJBAK HÅKONSSON	
Organization design constraints on strategy and performance	165
BO ERIKSEN	
Action leadership, multi-contingency theory and fit	181
DORTHE DØJBAK HÅKONSSON, RICHARD M. BURTON, BØRGE OBEL, AND JØRGEN LAURIDSEN	
Part 4: The Dynamics of Adaptation and Change	203
Management and Genghis Khan: Lessons for multinational business enterprises	205
JOHN D. FORSYTH	
Designing firms for knowledge acquisition and absorptive capacity	219
GEORGE P. HUBER	
Models of change, organizational redesign, and the adoption of web technologies	243
JØRN FLOHR NIELSEN	
Governance channels and organizational design at General Electric: 1950-2001	267
WILLIAM P. OCASIO AND JOHN JOSEPH	

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Editor's Introduction

Welcome to the first volume of *Organization Design: The Evolving State-of-the-Art*. For many years, organization design has been a sub-field of the larger discipline of organizations and management. In the early 1960s, a conference focused on the topic of organization design was held at the University of Pittsburgh. A group of leading management scholars met to discuss design issues and, among other things, concluded that the number of critical variables involved in designing an organization totaled approximately 200 (Thompson, 1966). In those days, before the widespread use of computers, the design challenge must have seemed immense to both scholars and practitioners alike.

To our knowledge, another conference on organization design was not held again until an international group of scholars convened at the University of Southern Denmark in May 2005. In the intervening four decades, much has been written about organization design, and this field, along with that of organizational development, has become the main repository of knowledge about how to plan, build, and change (re-design) an organization.

The organizers of the Denmark conference believe that the field of organization design can and should play a much larger role in management theory and practice than it presently does. The book that you have before you, which is a collection of the papers presented at the conference, is part of an effort to achieve that end. The various chapters review the main theoretical perspectives on organization design, identify important theoretical and practical issues currently facing the field, and suggest ways for valuable research to be conducted in the future. Many chapters conclude

with sections that describe how the theoretical argument or empirical study specifically informs organization design theory and practice.

The volume is divided into four parts. Part 1 is devoted to the theoretical foundation of organization design and related practical issues. The first chapter, by Snow, Miles, and Miles, discusses the configurational (or multi-contingency) perspective, and the authors describe four research initiatives that they believe would improve this theoretical perspective. The other chapter in this section, by Donaldson, discusses the contingency perspective. Donaldson identifies the major challenges to the contingency theory of organization structure, and he shows that overcoming those challenges leads to both theoretical and methodological innovations.

The chapters in Part 2 focus primarily on the issue of fit (alignment, congruence) in both the contingency and configurational perspectives. The chapter by Andersen, Eriksen, Lemmergaard, and Povlsen addresses two important types of fit involving a firm's strategy and its human resource management system. The authors discuss the vertical fit between strategy and human resource management, and the horizontal fit among key human resource management practices. The chapter by Grundeir uses a configurational perspective to show how an organization can be designed effectively even though it must meet simultaneous conflicting demands such as those presented by trust and control. The third chapter, by Gulløv, explores the structural limitations of flexible organizational forms using the main contingencies of technology and environmental uncertainty. Lastly, the chapter by Søndergaard, based on data from city managers in 14 different countries, examines the fit between an organization's national culture and several contingency variables subject to managerial discretion.

In Part 3, four chapters examine the relationship between a firm's design and its performance. The chapter by Eriksen uses an information-processing perspective to explore how design choices affect a firm's realized strategy (as opposed to its intended strategy) and therefore how choices constrain overall firm performance. The chapter by Håkonsson, Burton, Obel, and Lauridsen reports an empirical study that examines relationships among firm strategy, leadership style, and firm performance. Their study tests four misfit hypotheses about the strategy-leadership relationship and its influence on firm performance. The third chapter, by Klaas, Lauridsen, and Håkonsson, discusses three unresolved theoretical issues concerning misfit which confound the true impact that design has on performance. The last chapter in this section, by Carroll and Hunter, is based on an empirical study of firms' creation of new organizational units focused on e-business. The authors explore relationships among organization design (governance and leadership), firm learning (exploration and exploitation), and firm performance (stock market returns).

Part 4 of the book focuses on the dynamics of organizational adaptation and change. The chapter by Forsyth argues that many design and management challenges facing today's multinational business enterprises are analogous to those faced – and overcome – by Genghis Khan over 700 hundred years ago. Forsyth identifies what he believes are the main design principles underlying the organization and management structure of the Mongolian empire. The next chapter, by Huber, describes six processes organizations use to acquire technical knowledge for use in innovation projects. He discusses how the process of organizational adaptation is affected by a firm's absorptive capacity, knowledge-acquisition process, and learning capability. The chapter by Nielsen is based on two surveys of Internet technology adoption by Nordic banks and manufacturers. Nielsen shows how recent developments in organizational change theory are useful in understanding the adoption process. The final chapter, by Ocasio and Joseph, is an analysis of the governance structures and processes of the General Electric Company over a fifty-year period. This chapter clearly demonstrates the importance of organizational re-design to maintain adaptive capability.

We hope you find these chapters to be useful in your own work on organization design, and we welcome your suggestions about future volumes in this series.

Richard M. Burton
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Dorthe Døjbak Håkonsson
Charles C. Snow

February 2006

PART 1: THEORETICAL AND PRACTICAL ISSUES

Chapter 1

THE CONFIGURATIONAL APPROACH TO ORGANIZATION DESIGN: FOUR RECOMMENDED INITIATIVES

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Abstract: The overall objective of this chapter is to reinvigorate interest in the configurational approach to organization design. Configurational analysis developed in promising ways in the 1970s and 1980s and then stalled. We believe, however, that the configurational approach can be improved such that it will serve the interests of scholars, managers, and organizational designers alike. We discuss four research initiatives that can be combined to produce a theoretically and practically useful approach: (1) adding the configurational elements of organizational capabilities and management philosophy; (2) incorporating into theory development a mechanism for anticipating future organizational forms and helping managers to consider those forms; (3) developing valid quantitative measures of capabilities and other intangible assets; and (4) improving the model of change that underlies the redesign process.

Key words: Organization Design, Organizational Configuration, Configurational Analysis, Multi-Firm Network Organization

1. INTRODUCTION

Designing an organization requires the skillful application of knowledge. The relevant knowledge base is very diverse, including concepts, approaches, and research findings from fields such as psychology, economics, logistics, information technology, and change management. Moreover, in actuality most design issues are re-design issues – they involve

analysis of an existing organization, the diagnosis of misalignment and other problems, and changes made to the organization to achieve increased effectiveness. Thus, organization design can be thought of as “scientific art,” and its best practitioners have a deep understanding of how organizations work as well as how they can and must be changed.

For this chapter, we define the organization design literature as those works that have been written expressly for designers and practitioners (Burton et al., 2006; Galbraith, 1973, 1977, 2000; Goold and Campbell, 2002; Nadler and Tushman, 1997; Nystrom and Starbuck, 1981) as well as the major theoretical frameworks that have been used in practice (Chandler, 1962; Drucker, 1946; Miles and Snow, 1978; Nohria and Ghoshal, 1997; Weber, 1947). Generally speaking, the literature can be viewed from either a contingency or multi-contingency perspective. Contingency theories tend to rely on a single dominant variable as the determinant of organizational structure and behavior, such as technology (Woodward, 1965) or the environment (Burns and Stalker, 1961). Multi-contingency theories, on the other hand, are built upon clusters of variables, and these theories emphasize the need for alignment or fit among organizational components (Gresov, 1989). Multi-contingency theory has also been called configurational analysis (Meyer et al., 1993).

Based on our assessment of the organization design literature, we think it is unfortunate that configurational research seems to have stalled. Configurational analysis, which made great progress in the 1970s and 1980s, emphasizes the holistic nature of organizations as well as their need for coherence (Meyer et al., 1993), two important ingredients of any recipe for organization design. However, despite our enthusiasm for the configurational approach, the current models are incomplete. Specifically, configurational analysis could be improved with our four recommendations: (1) adding the configurational elements of organizational capabilities and management philosophy; (2) incorporating into theory development a mechanism for anticipating future organizational forms and helping managers to consider those forms; (3) developing valid quantitative measures of capabilities and other intangible assets; and (4) improving the model of change that underlies the redesign process. After a brief review and assessment of the configurational approach, we discuss each of these four research initiatives.

2. DEVELOPMENT OF THE CONFIGURATIONAL APPROACH

Modern interest in organization design can be traced to the writings of the German social philosopher Max Weber (1947), who viewed the emergence of the bureaucratic form of organization as essential to providing the merit-based legitimacy and rules-based continuity required by modern democracies and economies. Weber described and commended a form of organization that was well suited to societal needs and objectives of the time. In the corporate world, an early well-known organization design was Alfred P. Sloan, Jr.'s (1963) blueprint for organizing General Motors Corporation. In his internal company report, "The Organizational Study," written in 1920, Sloan described the new divisional structure which rationalized the collective operations of the group of independent automobile companies that had been assembled by GM's founder, William C. Durant. In addition to introducing the divisional structure, Sloan discussed many of the management processes required by that structure, including the creation of the new role of division general manager, how performance should be measured, and how managers could be rewarded for improving performance. Indeed, Sloan has been credited with virtually inventing the modern corporation (Welch, 2004). As did Weber, Sloan used "form follows function" logic in his design for General Motors, and he viewed the firm holistically in making his design choices and recommendations.

In the 1950s and 1960s, scholars began to develop theories that linked the organization to its environment. For example, Chandler's (1962) detailed history of the evolution of the modern firm clearly showed how new structural and managerial developments at General Motors, Sears, and other major firms were responsive to conditions in the marketplace. Other researchers developed contingency theories that related aspects of organization structure to existing and emerging technologies and market factors (Burns and Stalker, 1961; Lawrence and Lorsch, 1967; Woodward, 1965). Gradually, theorists began to view organizations as systems in dynamic interaction with their environments (Haberstroh, 1965; Thompson, 1967), and the term "design" came to refer to the practice of building effective organizations (Thompson, 1966).

The process of theoretically integrating strategy, structure, and process variables accelerated in the 1970s and continued on into the 1980s. Indeed, this period marked the heyday of configuration, as a number of researchers independently arrived at the notion that organizations could be usefully conceptualized as configurations of resources. For example, Galbraith (1977) proposed his star model, a generic configuration composed of strategy, structure, human resources, rewards, and management processes.

Peters and Waterman (1982) offered a similar framework called the 7-S model which contained seven major organizational components (strategy, skills, structure, systems, staff, shared values, and style). Miles and Snow (1978) empirically examined relationships among organizational strategy, structure, and process, and they identified three commonly occurring configurations called the prospector, defender, and analyzer. Each configurational type had a particular combination of strategies, structures, and systems. Moreover, their framework included a dynamic dimension, called the adaptive cycle, and a diagnostic checklist that designers or managers could use to guide their organizations through the cycle. The theoretical value of viewing organizations as configurations is now well established (Dess et al., 1993; Meyer et al., 1993; Miller, 1986, 1996; Miller and Mintzberg, 1983; Mintzberg, 1990). Of particular importance is the fact that high-performing configurations are those with internal and external congruence, alignment, or fit (Gresov, 1989; Miles and Snow, 1984; Van de Ven and Drazin, 1985).

All of the various design approaches that were developed in the 1970s and early 1980s applied to the types of organizations that dominated the economy at the time – namely, functional, divisional, matrix, and other hierarchically structured organizations. The most comprehensive approach was that of Mintzberg (1979), which not only showed how to build traditional hierarchical organizations but also leading-edge organizations such as the professional adhocracy. None of those design approaches, however, anticipated or described a new organizational form that began to spread quickly in the 1980s and on into the 1990s. That form is the multi-firm network organization, identified by Miles and Snow (1984, 1986) and further delineated by Thorelli (1986) and Powell (1990).

Firms using a network organization base their strategies and operations on their core capabilities, outsource non-core activities to specialized provider firms, and develop management processes that span all of the firms in the network. By managing across firm boundaries, a group of firms can create an “extended enterprise” that is highly flexible and contains many capabilities (Magretta, 1998; Miles and Snow, 1994). The network concept has also been used to design internal organizational networks composed of the units of large multinational corporations (Goold and Campbell, 2002; Nohria and Ghoshal, 1997).

By combining the ideas and concepts contained in the core works discussed above, we can outline the conventional configurational approach to organization design as follows.

- The broad framework is that of strategy-structure-environment fit or congruence.

- The organization is conceptualized as a system or configuration whose major components include strategy, people, structure, and management processes.
- Overall organizational performance is heavily dependent on the quality of the internal alignment of the organization's components as well as the external fit between the organization and its environment.
- The process of achieving fit is dynamic, and both the organization's internal and external alignment must be continually monitored and adjusted.
- All of the basic organizational configurations, from the older hierarchical forms to the modern multi-firm network organization, have particular strengths and limitations; there is no all-purpose organization design.

This general configurational framework was essentially in place by the late 1980s and has experienced only a moderate amount of development since that time. Using the established framework as a springboard, we now discuss four initiatives that, we believe, would considerably enhance the value of the configurational approach.

3. EXPANDING THE THEORETICAL MODEL OF ORGANIZATIONAL CONFIGURATIONS

We suggest that existing configurational models be expanded to include the component of organizational capabilities. Every organizational form requires a particular set of capabilities to operate it. Until those capabilities are in place – that is, they have been identified, the proper investments in their development have been made, and managers clearly understand how to refine the firm's capabilities into organizational routines – then the potential of the form cannot be fully realized.

The theoretical importance of organizational capabilities has been frequently noted (Dosi et al., 2000; Helfat, 2000; Teece et al., 1997), but the rigorous examination of the relationship between capabilities and other organizational characteristics has been hampered by the fact that capabilities are essentially possessed by individuals not organizations (Felin and Foss, 2005). Therefore, in order to incorporate capabilities into a configurational framework, one must aggregate the knowledge and skills possessed by individuals into an organizational or collective construct (see our discussion of how to quantitatively measure capabilities and other intangible assets in the section below). Moreover, we believe that an even higher-order construct, which we call a meta-capability (Miles et al., 2005), should be incorporated into future theoretical frameworks. A meta-capability is the

widespread presence of a social asset, an abundant societal resource that firms can draw on to operate their chosen form of organization. For example, older organizational forms relied on meta-capabilities such as coordination and delegation, and in advanced economies today these capabilities are widely available to firms that wish to use them. Conversely, newer organizational forms, whose success hinges on the ability to cooperate and collaborate, cannot easily tap into such social assets.

An expanded theoretical model also needs to include management philosophy – the values, beliefs, and assumptions that underlie and guide leadership and decision-making approaches (Bendix, 1974; Miles, 1975; Miles and Creed, 1995). In any given organization, managers' individual and collective philosophies tend to coalesce around the features of the existing resource configuration and may not be up to the challenge of changing to a new configuration (Meyer, 1982). Managerial philosophies affect the emergence and success of new organizational configurations in two main ways. First, restrictive assumptions and beliefs impede the experimentation that is essential to the development of a new resource configuration. For example, many firms have attempted but failed to create effective divisional structures because their managers did not have a philosophical commitment to decentralized decision making, a key requirement of the divisional structure. Second, as we noted above, each new organizational form demands the development of the essential capability required for its success. Such demands can only be satisfied with heavy and continuing investments in hiring, staffing, education, and development. Collaboration across multiple firms in a network, for example, cannot be completely effective unless managers throughout those firms believe in its value and invest accordingly.

4. THEORY THAT PREDICTS AND PRESCRIBES

Our second recommended initiative concerns the focus of theory development. Neither contingency nor multi-contingency (configurational) theories of organization design are as practically useful as they could or should be. In the main, such theories focus on description and explanation, but these features do not adequately meet the needs of practitioners who also want theories to predict and prescribe. As Weick (1999: 135) has noted, “the compact causal structures that epitomize our theories are artifacts of retrospect rather than narratives of prospect.” Viewed from a managerial perspective, such theories are helpful in explaining and understanding the present situation, but they do not permit a manager to anticipate changes that the organization may need to make in the future and to start preparing for

those changes now. Thus, much more than they presently do, organization design theories, to use Weick's words, need to focus on the idea of "living forward." This requires the use of theory-building approaches such as mapping, conceptual development, speculative thought, and simulations of evolutionary systems (Weick, 1989).

To incorporate the notion of living forward into theories of organization design, we see two possible ways that new organizational forms (configurations) can be anticipated. First, the compensatory approach is based on the fact that the invention of each new form is largely motivated by the desire to overcome the major limitations of the previous form (Greiner, 1972; Miles et al., 1997). For example, just as the divisional form overcame the rigidity and limited scope of the functional form, the matrix form of organizing combined the strengths of both the functional and divisional forms while minimizing their weaknesses (Davis and Lawrence, 1977). Similarly, the lack of overall flexibility associated with the vertically integrated organization explains why the network structure uncoupled a firm's functional units and outsourced some of them to independent providers. Increased adaptability and speed were the result. The major limitations of the network form of organizing have already been identified (Miles and Snow, 1992), so those limitations could be used as data to help construct a living-forward theory of organization design that identifies the major characteristics of the next stage of organizational evolution.

The second living-forward approach employs the concept of underutilized resources originally advanced by Penrose (1959). Penrose argued that a firm grows and diversifies when its existing type of organization is unable to fully exploit its current stock of resources. For example, she focused on excess managerial capacity as the underutilized resource that is a frequent cause of a firm's growth. Today, many observers say that the most underutilized resource among firms in the global economy is knowledge (e.g., Friedman, 2005). The drive to turn knowledge and other underutilized resources into economic wealth is what pushes managers to experiment with new ways of reconfiguring strategies, structures, and processes to make their firms more effective and valuable. Certainly, managers would be aided in such endeavors if their experiments could be transformed into planned and targeted explorations by useful theory. The alternative is to leave anticipation and interpretation of the future to consultants. However, consultants have little incentive to investigate organizational approaches that are significantly at odds with current practice. It would be much better, therefore, if scholars would enter into partnership with practitioners to build their theories (Gibbons et al., 1994; Pettigrew et al., 2001).

Whether one relies on the predictions of either the compensatory or underutilized-resource approach, we believe that the next evolutionary step in organizational form will result in the appearance of a configuration which we call a multi-firm collaborative network (Miles et al., 2005). This type of configuration will differ from previous types in that its strategy component will focus on continuous (as opposed to periodic) innovation, and its structure and process components will allow groups of firms to efficiently explore opportunities outside their existing industry boundaries (i.e., they will grow horizontally rather than vertically). If organization design scholars will devote more attention to developing the living-forward dimension of their theories, then new organizational forms such as the multi-firm collaborative network can be anticipated. A new form created around a community of independent firms operating in complementary markets will require heavy investments to create a broad capability for collaboration. It will be particularly important to identify the barriers, including established concepts and philosophies, which stand in the way of the new form's arrival and to indicate the kinds of investments that need to be made in order to operate the new form.

5. MEASURING INTANGIBLE ASSETS AND DETERMINING THE VALUE OF ORGANIZATION DESIGN

Our third recommended initiative involves intangible assets. Although approximately 32 percent of firm performance apparently can be explained by "firm conduct" variables (Carmeli and Tishler, 2004; McGahan and Porter, 1997, 2003; Reufli and Wiggins, 2003), the extent to which organizational capabilities and other intangible assets contribute to a firm's performance is unclear. Without the ability to calculate value, managers have difficulty justifying investments in intangible assets such as intellectual and social capital, and they cannot accurately measure the returns on those investments they do make.

Elsewhere we have proposed economic value creation as an outcome variable and have indicated that each major type of organizational configuration has certain value-creating properties (Miles et al., 1998). In modern organizations, value is increasingly being created via the management of intangible assets which, in turn, enable physical and financial assets to be optimally utilized (Lev, 2004). Specifically, a firm creates value by accumulating and applying knowledge through a set of operating and adaptation routines. Operating routines allow the organization

to conduct its established businesses efficiently, and adaptation routines help the organization find new businesses and make other beneficial adjustments to its environment. Any given organizational form achieves its potential when its requisite routines are fully developed and utilized – that is, the firm learns from its experience. Therefore, managers can facilitate the value-creation process by helping organization members to understand the processes by which routines are linked and how they contribute to overall organizational effectiveness. They do so by articulating the intermediate variables and actions that lead to desired outcomes both within their firms and across the network of firms in which they are embedded.

Until recently, it has not been possible to empirically test propositions about relationships among organizational learning, investments in intangible assets, and value creation primarily because intellectual capital, organizational capabilities, and other intangible assets could not be adequately defined, measured, or reported (Eisenhardt and Martin, 2000; Levitas and Chi, 2002; Marino, 1996; McGrath et al., 1995; Rouse and Daellenbach, 2002; Sveiby, 1997; Williamson, 1999). Without valid accounting tools, organizations cannot determine how to reward their managers for creating value, and managers cannot keep track of their own progress and adjust their decision making accordingly. Recent measurement advances, however, now allow key relationships between organizational configurations and outcomes to be quantitatively measured and calculated. For example, tools have been developed to measure intangible assets such as organizational capabilities, brand identities, corporate reputations, patents and know-how, and networks of professional and business relationships (Hand and Lev, 2003; Lev, 2001, 2004). Although these first-generation tools have their limitations (Bontis, 2000), they will be refined to the point where they can be used in both research and practice. Indeed, some European firms, such as Skandia AFS (a subsidiary of the Skandia Insurance Group), already calculate an internal intellectual capital index simply because they believe it is valuable to managerial decision making (Edvinsson, 2002). This practice will spread to other firms, particularly those in knowledge-intensive industries where intellectual and social capital are critically important to success. In the U.S., both the Federation of Accounting Standards Board and the Securities and Exchange Commission presently endorse the calculation of a firm's intellectual capital as a supplementary account, and we believe that it is only a matter of time before such accounts are required.

As we discussed in our first recommended initiative, the intangible asset that we believe should receive the most research attention is organizational capabilities (despite the fact that the literature on this topic is already very large). If strategy is the organization's intent and plan, then capability is the

main enabling factor that allows strategy to be pursued. Capability can be defined as the ability of the organization to combine efficiently a set of resources to engage in productive activity and attain a certain objective (Amit and Schoemaker, 1993). Thus, capabilities are a transformational mechanism built on the combined skills and competencies of individuals in the organization (Ulrich and Smallwood, 2004), and they can be measured in two basic ways.

The first measurement method relies on the subjective evaluations of organization members (see Smith et al., 2005, for a recent example). According to Ulrich and Smallwood (2004), an organization can conduct its own capabilities audit by selecting a particular business unit and then asking the members of that unit to identify and assess various generic organizational capabilities such as technology and product development, talent management, collaboration, learning, customer relations, and innovation. The results of a capabilities audit can be used for a variety of purposes, including setting investment priorities, measuring progress from previous years, and determining gaps between strategic objectives and the capabilities needed to accomplish them.

The second measurement method, return on investment (ROI), calculates returns on intangible assets based on inputs and outputs. In the accounting version of the ROI method (Lev, 2004), inputs are costs and outputs are revenues. Certainly, the assignment of costs and revenues to a particular asset must be valid. For an especially soft asset such as organizational capabilities, organization members will have to work closely with financial experts to develop a useful measure for a given organization or research study. Another ROI method measures inputs with costs but uses physical output instead of revenues as the outcome variable. For example, a study by Dutta et al. (2005) used stochastic frontier estimation to measure the output of R&D capability. The ROI method, perhaps coupled with a capabilities audit, can provide an organization with a useful means of quantifying the value of its core capabilities.

6. REDESIGNING AND CHANGING ORGANIZATIONS

Our final recommended research initiative concerns organizational redesign – the application of design theory to existing organizations. The conventional design framework is largely static, and while it can be very useful to managers as a conceptual device for constructing a new organization, it does not offer the managers of ongoing organizations the specific practical guidance they need to keep their organizations aligned with

changing environmental conditions. In order to make the configurational framework more practically useful, we believe that design theory needs to incorporate relevant concepts and approaches from the literature on organizational change, particularly in the areas of the diagnosis, planning, and implementation of change.

Determining an organization's need for redesign and change begins with a thorough analysis of its performance. Performance analysis must be multifaceted and longitudinal. Multiple performance indicators, linked to the organization's various stakeholders, must be examined over time in order to get a clear picture of performance trends as well as a complete assessment of the firm's present condition. One tool that takes a broad or strategic perspective is the balanced scorecard (Kaplan and Norton, 2000). Next, in search of performance improvement, the analyst must determine areas of poor or declining fit. Configurational logic indicates that high performance results from a strong external fit between the firm's overall strategy and its environment, and a tight internal fit among capabilities, structures, processes, and management philosophies. A model using this logic has been developed by Zajac et al. (2000). Their model of strategic fit with the environment is dynamic, multivariate, and normative. An empirical test of the model using data from the savings and loan industry showed that poor prior performance provides firms with an indirect though powerful indicator of capability and/or environmental misfit. If it has been properly specified for a particular industry, then the model can be used to predict the direction, magnitude, and timing of beneficial strategic changes for firms in that industry. Managers can use this model's approach to determine the unique strategic (external) fit of their firm at a particular point in time.

After assessing environment-strategy-performance alignment, planning for redesign and change can begin. The least difficult redesigns to plan are those that are intended to strengthen internal fit (the alignment of capabilities, structures, and processes to strategy). Most internal changes of this sort are efficiency oriented – the overall objective is to link activities together in the most economical way. Economizing tools such as business process reengineering, six-sigma quality, and job redesign are well-tested, and their underlying theories are relatively well understood. The more difficult redesigns to plan are those that involve the alignment of strategy to the environment. Planning that is intended to improve external fit is difficult because environmental conditions are changing more rapidly than internal organizational conditions and their impact is largely unpredictable.

The total planning effort for organizational redesign often requires a combination of scenario planning to guide the process of external fit (Okoli and Pawlowski, 2004) and strategic programming to improve internal fit (Mintzberg, 1994). OrgCon, a theory-based diagnostic and design tool, can

be used to examine both external and internal misfits for programming purposes. Its case-based, self-guided approach solicits user input data on an actual firm or other type of organization (Burton and Obel, 2006) to develop insights and recommendations on redesign possibilities. We believe that OrgCon and other computer-aided instruments for diagnosing and planning the redesign of existing organizations will become more widely available and practically useful.

Lastly, current organization design theory stops well short of showing managers how to implement their redesign decisions efficiently and effectively. Although several large-scale change models are available (e.g., Beckhard and Harris, 1977), none contain the step-by-step detail that managers need to create lasting changes in their organizations. Nevertheless, we believe that there is enough theory, experience, and case-study evidence available to compile a set of useful redesign and change guidelines. For example, one experienced change consultant has used a configuration-based change-management approach that has resulted in several cases of successful large-scale organizational redesign (Miles, 1997). In that approach, a behaviorally sound transformation process is anchored by an internal workshop for organization members and a change facilitator's guide. The various elements of this and similar change-management approaches could be incorporated into a complete set of general best practices that apply across all types of redesign situations.

7. CONCLUSION

An organization is both an articulated purpose and an established mechanism for achieving it. Over time, both organizational purposes (and the environments they serve) and their mechanisms have become increasingly complex. The configurational approach identifies patterns and relationships within this complexity, providing a conceptual framework for linking purpose and strategy to organizational structures and processes. For the most part, however, extant configurational theory and research have attempted to help managers improve upon the designs of existing organizational forms. By presenting our four recommended research initiatives, we are suggesting that it is now time to actively explore the things that existing organizational forms cannot do, such as to more fully utilize the firm's knowledge and other intangible assets to pursue innovative strategies across a network of collaborating firms. By making explicit the complete construct of configuration – strategy, capability, structure, process, and philosophy – we can begin to imagine, and then design, alternative organizational forms that can achieve such ends. Furthermore, we will be

able to measure the contribution that a particular organizational form is making to firm performance and to modify it as appropriate. Finally, when organizations need to be redesigned, we will be able to assist managers in their efforts with useful diagnostic and planning tools and, eventually, with best-practices guidelines for changing their organizations.

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Chapter 2

THE CONTINGENCY THEORY OF ORGANIZATIONAL DESIGN: CHALLENGES AND OPPORTUNITIES

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Abstract: Contingency theory presently provides a major framework for organizational design. There are, however, several major challenges to it. Contingency theory is said to be static. However, the SARFIT formulation of structural adaptation, with the Cartesian approach to fit, provides a theory of organizational change. Moreover, difficulties become opportunities for theory development, in the new concepts of quasi-fit and hetero-performance. The contingency theory of organizational structure is said to be obsolete because of new organizational forms, but this lacks credibility. A rival theory of organizational structure is institutional theory, however it is problematic. Challenges and opportunities in methodology are also discussed.

Key words: Contingency theory, fit, organization design.

1. INTRODUCTION

The contingency theory of organizational structure presently provides a major framework for the study of organizational design (Donaldson, 1995a, 2001). It holds that the most effective organizational structural design is where the structure fits the contingencies. There are, however, several major challenges to it. Some of these are theoretical, while some are empirical. This paper will assess some of these challenges and show that they are overstated. However, some challenges lead to innovations in theory. Other challenges are accompanied by innovations in method. Both these theoretical and methodological innovations constitute opportunities for the contingency

theory of organizational structure. In turn, they can feed into the study of organizational design.

This paper will discuss first some theoretical challenges to, and opportunities for, the contingency theory of organizational structure. It will then discuss the empirical and methodological challenges to, and opportunities for, the contingency theory of organizational structure.

2. THEORETICAL CHALLENGES AND OPPORTUNITIES

2.1 The challenge of organizational change

The contingency theory of organizational structure may be referred to more succinctly as structural contingency theory (Pfeffer, 1982). A challenge is that structural contingency theory is static and fails to deal with organizational change and adaptation (Galunic and Eisenhardt, 1994). It is true to say the heart of structural contingency theory is statics, in the sense that it deals with how a static state of fit between structure and contingency causes high performance (e.g., Woodward, 1965). However, structural contingency theory writings are within a functionalist tradition of social science (Merton, 1968) that sees organizations as adapting to their changing environments (Parsons, 1961). Therefore, organizations change from one fit to another over time.

More specifically, there is a process that has been articulated in the theoretical model of Structural Adaptation to Regain Fit (SARFIT) (Donaldson, 1987, 2001). An organization in fit enjoys higher performance, which generates surplus resources and leads to expansion (Hamilton and Shergill, 1992), such as growth in size, geographic extension, innovation or diversification. This increases the level of the contingency variables, such as size, leading to a misfit with the existing structure (see Figure 2.1). The misfit lowers performance, eventually leading to a performance crisis and adaptive structural change into fit (Chandler, 1962).

This SARFIT theory subsumes several seminal works in structural contingency theory, such as Chandler (1962) on divisionalization changes in response to changing strategies and Burns and Stalker (1961) on changes from mechanistic to organic structures in response to technological and market change in the environment. Thus, the structural contingency theory tradition has always contained ideas about dynamics and these are formulated in the SARFIT theory.

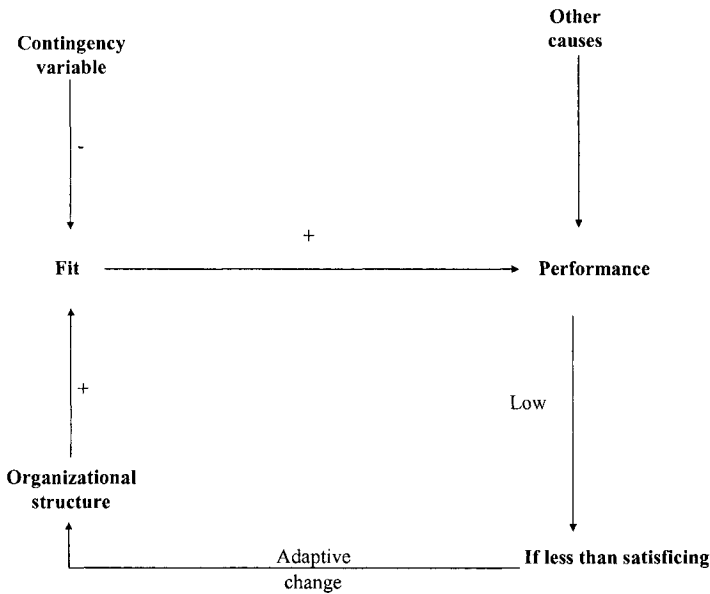


Figure 2.1. The Contingency Theory of Structural Adaptation to Regain Fit (SARFIT)

Structural contingency theory, like sociological functionalism more generally, is often considered as being an equilibrium theory, in that organizations are depicted as attaining fit and then being in equilibrium and so remaining static. However, SARFIT is a disequilibrium theory of organizations (Donaldson, 2001). In SARFIT an organization only remains in fit temporarily, until the surplus resources from the fit-based higher performance produce expansion. This increases contingency variables, such as size or diversification, leading the organization into misfit with its existing structure. Thus, in the SARFIT view, fit and misfit are each temporary states that alternate with each other. An organization in fit tends to expand into misfit, which provokes structural adaptation into fit, which then leads to further expansion into misfit. This cycle repeats itself over time. As the organization moves between fit and misfit so it has resultant higher and lower performance, respectively. Each phase of moving into misfit produces incremental increases in contingency (e.g., size). And each phase of moving into fit produces incremental increases in structure. Thereby, these increments accumulate over time and so tend to eventually produce growth from being a small, local and undiversified organization to being a larger, geographically widespread and diversified organization.

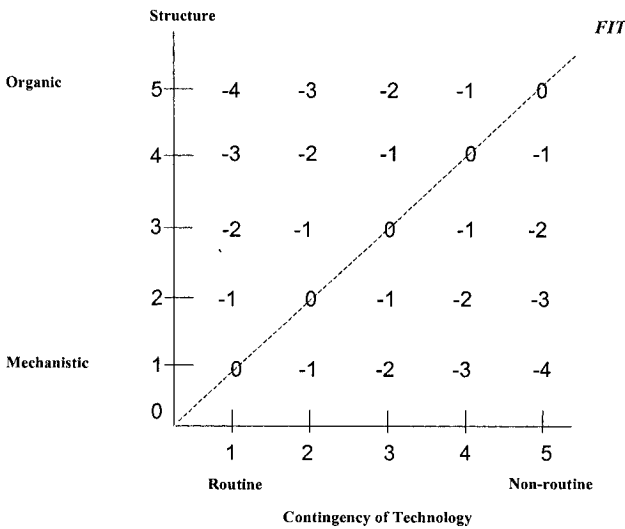


Figure 2.2. Iso-performance: Fit, Misfit and Performance

A modern variation of contingency theory is configuration theory, which states that the fit between contingency and structural (and other organizational) variables is limited to just a few configurations or gestalts, that is, fits (Miller, 1986). However, an alternative theoretical concept is Cartesianism (Donaldson, 2001), which holds that there are many fits, so that there is a continuous line of fits. Each level of a contingency variable is fitted by a level of the structural variable (see Figure 2.2). Hence, for example, whereas configurationalism argues that there are few fits between size and formalization, such as simple structure and machine bureaucracy (Miller, 1986), Cartesians holds that there are many (Child, 1975). Because fits lie along a continuous line (Child, 1975), they provide stepping-stones for organizational growth. An organization can readily move from one fit to an adjoining fit, thereby attaining high performance at each fit, and so giving it the extra resources needed for the next increment of contingency expansion. Thus the idea of a continuous fit line is consistent with the SARFIT model of repeated incremental changes in contingency and structure. Together, these theoretical ideas explain why organizations show frequent, incremental change (Donaldson, 1996) – rather than the infrequent quantum jumps postulated by configurationalism. Thus Cartesianism is part

of a coherent theory of organizational change. Empirical evidence supports Cartesianism, rather than configurationalism (Donaldson, 1996, 2001).

Critics of structural contingency theory sometimes argue that it is not sensible for organizations to move into fit with their contingencies, because while the organization is changing its structure to fit the contingencies, the contingencies themselves change, so that the organizational structural change does not produce fit. Nevertheless, by moving towards the fit, the organization is decreasing misfit, and thereby increasing its performance relative to what it would be if it were to make no structural change.

The organization may attain not full fit, but quasi-fit, that is, a structure that only partially fits the contingencies (see Figure 2.3) (Donaldson, 2001). Yet this may increase performance sufficient to produce some expansion in the contingencies. As seen in Figure 2.3, an organization that is in misfit by being below the fit line can follow a growth path of increasing its organizational size and structure by moving into quasi-fit, rather than full fit. For such an organization in misfit, it may increase its structure sufficiently to move up onto the quasi-fit line. This level of fit produces an increase in the performance of the organization, though less than would be produced if the organization had moved into full fit. Nevertheless, this quasi-fit produces a sufficient increase in performance that the organization has new surplus resources that allow it to grow. This increment of growth propels the organization forward into a new state of misfit, which again can be resolved by the organization increasing its structural level sufficient to attain move back onto the quasi-fit line. Thus quasi-fit can be sufficient to impel the cycle of incremental changes of SARFIT, which accumulate over time into substantial organizational growth in contingencies and structural variables.

It is sometimes also said against structural contingency theory that organizational managers may not know the fit states of the theory and so cannot change their organization towards it. However, the concept of quasi-fit allows that managers only need to move towards fit for misfit to be reduced and the SARFIT cycle to operate (Donaldson, 2001).

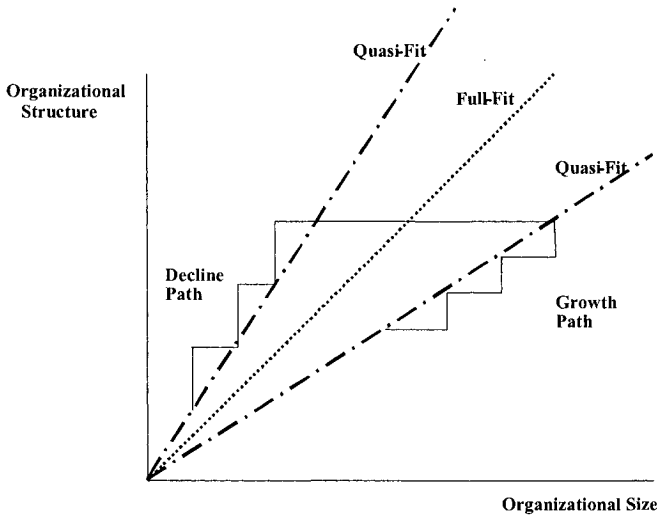


Figure 2.3. Lines of Quasi-Fit Showing Growth and Decline Paths

2.2 Hetero-performance

Structural contingency theory holds that organizations in fit have, as a result, higher performance than those in misfit. However, all these fits produce the same high level of performance. For instance, Woodward showed that organizations in fit to each of three levels of the technology contingency attained the same high level of performance. Van de Ven and Drazin (1985) talk about the fit line as being one of iso-performance, that is, equal performance of all the fit points on it (Figure 2.2). However, if each fit produces the same high performance, why would an organization move from one fit to another? Why do organizations change greatly, such as from being small and unformalized to being large and highly formalized if both those states are fits between size and formalization and so yield the same benefit? For movement along the fit line to be organizationally rational there must be some gain from it.

In contrast, hetero-performance theory (Donaldson, 2001) holds that fits to higher levels of the contingency produce higher performance than fits to lower levels of the contingency (see Figure 2.4). Thus, for the fit line of formalization to size, each successive fit produces higher performance than

the fit that precedes it. Thus, the fit of slightly greater formalization to slightly larger size produces higher performance than a fit of slightly lesser formalization to slightly smaller size. This also explains why an organization in misfit, with a contingency that is at too high a level to its existing structural level, moves into fit by adopting a greater structural level, rather than going back to its preceding contingency level.

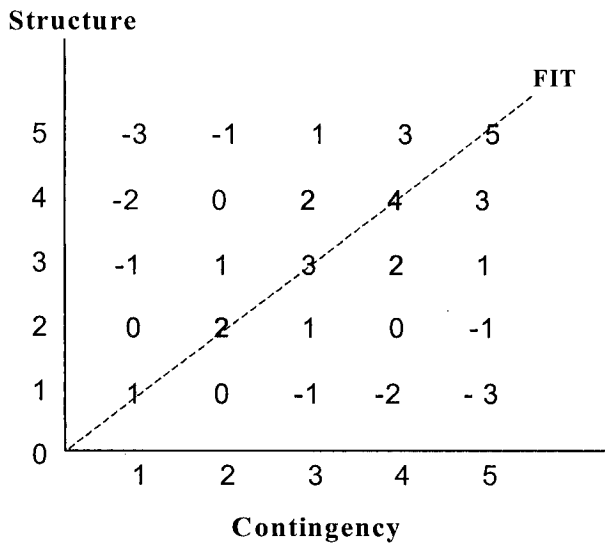


Figure 2.4. Hetero-Performance: Fit, Misfit and Performance

For example, empirically, organizations that have diversified and retained their functional structure that then misfits their strategy, regain fit by adopting a divisional structure that fits their diversified strategy, rather than just de-diversifying (or “downscoping”) to fit their existing functional structure (Donaldson, 1987). Thus, hetero-performance is consistent with observed tendencies of an organization to move to higher fits along the fit line, i.e., fits to higher levels of the contingency variable. This, in turn, explains how organizations grow, producing variations in size and structural variables. Hetero-performance is therefore consistent with the SARFIT theory of organizational change, because there is a gain to be had from moving along the fit line.

Researchers sometimes operationalize the effect of fit on performance by a multivariate interaction term of contingency (C) multiplied by structure (S), i.e., $C \times S$. Donaldson (2001) has shown that this is a poor operationalization of the traditional contingency fit concept of iso-performance (see below). However, the multivariate interaction term is a better operationalization of the newer concept of hetero-performance. Therefore, in empirical research, a positive correlation between the multivariate interaction term and performance should be cautiously seen as some preliminary evidence of a possible hetero-performance relationship.

Both iso-performance and hetero-performance may be valid in their own domains. Therefore it may be possible to create a new, more overarching theory by specifying what those domains are. There are reasons for believing that iso-performance holds for environmental contingencies, whereas hetero-performance holds for intra-organizational contingencies. Where fit is determined by the environmental contingencies, then this is outside the control of the managers of an organization. Therefore, they will shift their organization's structural design from, for example, mechanistic to organic, as the environment changes from stable to unstable, because they are forced to, to regain fit and performance. This is the case even though the mechanistic fit to the stable environment produces the same high performance as the organic fit to the unstable environment. Thus when the environment changes, the organization must change structure in order to avoid the performance loss from misfit, despite the new fit producing no better performance than the old fit. In contrast, if the contingency is an internal characteristic of the organization, then managers can control it, and so they will not change structures from one fit to another unless the new fit produces higher performance than the old fit, i.e., hetero-performance.

Thus, taken together, the challenges to structural contingency theory of being a supposedly static, equilibrium theory which fails to deal with organizational change or explain how managers can move into fit or why they move between fits, can be resolved by altering the theory to include the related theoretical innovations of SARFIT, disequilibrium, quasi-fit and hetero-performance. Developing these newer theoretical ideas and using them empirically constitutes an opportunity for future work in structural contingency theory within organizational design.

2.3 Contingency theory not obsolete

Another theoretical challenge to structural contingency theory is that the organizational structures featuring in contingency theory are obsolete and are being replaced by new organizational forms. This argument is in a long

line of declarations that some modern development, often technology, is rendering existing structures ineffectual or no longer required. Eccles and Nohria (1992) investigated organizations whose structures were touted as radically new forms and found them to be traditional structures described in dramatic language. Thus, the examples they could find were rhetorical not real.

A survey of many organizations in one country concludes that they are overwhelmingly continuing to use traditional macro-structures such as the divisional type, with innovations such as information technology or teams being incremental, not radical, changes within this broader traditional framework (Palmer and Dunford, 2002). Similarly, a study of organizations from many European countries found that organizations are not radically flattening their structures. The change across organizations can be calculated to be a mean annual reduction of only 0.3 of a hierarchical level (Whittington, Mayer and Curto, 1999). Again, there were also innovations such as email, but within the conventional macro-structures rather than replacing them (Whittington, Mayer and Curto, 1999).

While technology has been asserted to lead to less bureaucratic structures (Woodward, 1965), a subsequent analysis concludes that it actually leads to mild increases in bureaucratization (Caufield, 1989).

New developments in information technology are depicted as leading to radically new organizational structures, such as eliminating hierarchy. However, while email may facilitate information passing, it does not perform the functions of exercising authority. Again, information technology can speed data transmission and calculations. Yet very little of line managers' time is spent on data transmission and calculations (Mintzberg, 1973). Their time is spent more on synthesizing quantitative and qualitative information, exercising judgments and persuasion – not functions that computers can do. Moreover, while expert systems are replacing human judgment in decisions such as credit approval in banks, these are low uncertainty tasks, whereas much of managing is about uncertainty. Therefore, managers continue to be required even alongside the new information technologies. Each manager can only supervise a limited number of subordinate managers, i.e., a limited span of control. Therefore, hierarchies will remain, and will not become markedly flatter. Hierarchies will only radically flatten from information technology when the brain of a manager can be greatly augmented, perhaps through an attached computer, to create a computer-aided manager who can deal with a vastly enlarged span of control.

2.4 The challenge of institutional theory

Today perhaps the most popular organizational theory is institutional theory (e.g., Scott, 1995). This holds that organizations adapt to their institutional environment by adopting features that are considered legitimate in the wider institutional environment, thereby garnering support. This process may be without adopting characteristics that produce higher operational effectiveness (DiMaggio and Powell, 1991) and thus are different from the process of fitting the organization to the task contingencies in structural contingency theory. Thus the approach differs from structural contingency in stressing the symbolic more than the real, and in adaption as being to institutional norms rather than organizational task contingencies.

While institutional theory rejects explanations of structure as being required by organizational performance, it typically fails to study performance and so cannot show contingency theory explanations to be false. Thus many arguments of institutional theory remain as unproven assertions. Moreover, evidence from structural contingency theory research that structural changes are movements into fit that raise organizational performance (Donaldson, 1987), refutes institutional theory. Continuing research into structural fit and its performance consequences should establish further the limitations of the institutional theory view.

Institutional theory is a profoundly cynical view that fails to recognize that work organizations can produce real outcomes of value in an operational sense (Donaldson, 1995b). It also fails to accord sufficient strength to the argument that many organizations are under competitive pressure to improve their operational effectiveness. Moreover, institutional theory emphasizes institutional isomorphism, that is, organizations becoming more like their peers (DiMaggio and Powell, 1983). However, even some of the longitudinal evidence presented by institutional theory actually shows the opposite – organizations becoming over time more unlike (Meyer, Scott, Strang and Creighton, 1988; see Donaldson, 1995b, pp. 85-88). Again, Kraatz and Zajac (1992) have shown that many liberal arts colleges failed to copy higher status colleges, and, instead, differentiated their curriculum by increasing vocational subjects, out of financial necessity. Strategy theorists point out that differentiation can be a valuable strategy, which is dysisomorphism. Structural contingency theory research reveals considerable variation across organizations in structures, associated with contingencies, even for organizations in the same industry (e.g., Blau and Schoenherr, 1971), which contradicts the institutional theory of isomorphism to a common norm in an organizational field. Thus, institutional theory is considerably less theoretically cogent and less empirically valid than its

prominence implies. There is considerable merit to pursuing structural contingency theory, despite the challenge posed by intuitionist theory.

There is a need, alongside any institutionalist studies of effects on legitimacy, to study consequences for operational effectiveness, because it is possible that, while some structural features may have benefits that come from legitimacy, they may also have negative consequences for operational effectiveness because they misfit the task contingencies. Some latter-day institutional theorists cleave to the extreme view that there are no objective structural consequences beyond those in institutional theory, because all causal processes are social construction. Thus, institutional theory, on its own, is a poor framework for use in organizational design research. Moreover, institutional theory reports that managers follow the socially acceptable norms (Fligstein, 1985). Hence managers already know the knowledge produced by institutional theory research. Therefore, the “discoveries” of institutional theory research are not telling managers something they do not already know. Hence institutional theory research tends not to produce knowledge that will lead to organizational change and improvement.

3. EMPIRICAL AND METHODOLOGICAL CHALLENGES

At the heart of structural contingency theory is the relationship between misfit and performance. This provides the explanation of why organizations adopt the structures that they do and thereby produce the associations between structural and contingency variables. Thus, these hypothetical fits and misfits need to be refined and their performance benefits empirically proven. Moreover, clearly identifying such fits allows structural contingency research to offer valid prescriptive guidance to managers about what organizational designs they should adopt. Showing the strength of the effect of fit and misfit on performance allows managers to be properly apprised of the importance of making needed organizational design changes. Thus an on-going challenge is to show the empirical validity of these structural contingency fits. This involves issues of methodology. Developments in methodology offer opportunities that can assist structural contingency theory research. Moreover, one major methodological development, while creating an opportunity for contingency theory, also poses a challenge to contingency theory research. We will begin this section with a discussion of that opportunity and challenge, before turning to a discussion of the opportunities in other aspects of methodology.

3.1 Polynomial regression method

A technical development is the polynomial regression method (Edwards and Parry, 1993), which has only recently begun to be used in structural contingency theory (Meilich, 2003; Rogers, 2005). This provides an opportunity, in that the method offers an alternative way to make an assessment of misfit-performance, which is to be welcomed. The Edwards method, however, also poses a challenge, because it makes establishing the fit-performance relationships more difficult. What follows gives a conceptually oriented overview of the main issues, for details of the procedure the reader should consult the publications (e.g., Edwards and Parry, 1993).

Fit occurs where the level of a structural variable (e.g., formalization) matches that required by the level of the contingency variable (e.g., size). Because the level of the required structure is given by the level of the contingency variable, fit is where this matches the level of the actual structure. Following Keller (1994), if both the structural and contingency variables are measured on scales from 1 to 5, and the fit line is that the level of the structural variable equals the level of the contingency variable, then fit exists when both variables are of level 1, both are of level 2 and so on. Misfit is where the actual structure differs from the contingency variable, e.g., structure is 3 but contingency is 2, giving a misfit of 1 (i.e., $3 - 2$). The greater the difference between the structural and the contingency levels, the greater is the misfit, and so, consequently, the lower the organizational performance. Thus, misfit (M) is the difference between the structural (S) and contingency (C) levels, mathematically ($S - C$). (More formally, ($S - C$) only captures the misfit where S is greater than or equal to C , because if S is less than C then ($S - C$) is negative even though misfit is positive. More generally, the absolute difference between S and C is required, but this can be handled by inserting a term in the equation that says that, when S is less than C , the negative sign of ($S - C$) is turned positive, so that misfits are always positive. Edwards follows this kind of procedure. To avoid complexity in this brief presentation, these subtleties will be elided, to give just the essence of the method.)

Conventionally, structural contingency theory is sometimes validated through showing that performance (P) is a result of the degree of misfit:

$$P = a - bM$$

by demonstrating empirically that the slope, b , is negative in the regression (where a is a constant term). Misfit is the difference between the actual

structural level (S) and that required by the organization's level of the contingency (C), so that the researcher is evaluating b in the equation:

$$P = a - b(S - C)$$

In contrast, Edwards argues that this kind of difference term ($S - C$) can be unpacked into its constituent variables in a multiple regression. Thus the equation can be expanded into:

$$P = a - bS + bC$$

The b terms are identical in value, but opposite in signs (one being negative, the other positive). Here bS is the slope coefficient of the effect of S on P while simultaneously controlling for the effect of C on P ; and vice-versa for bC .

Therefore, a misfit effect can be shown by taking the main effects of S and C on P . If the b of S and C meets the requirement of being identical in value but opposite in sign, then this is evidence for saying that the b for S and for C is the same as the b for M . Then, the b for S and the b for C is the b for M . Hence, if the logic holds in empirical analysis, finding b for S or b for C gives the b for M . If the b is non-zero, then this confirms that misfit affects performance. A negative b for S and a positive b for C show that the effect of misfit is to decrease performance, as contingency theory states. Thus the effect on performance of the misfit between contingency and structure has been re-expressed into main effects of contingency and structure.

This can avoid the need to calculate the difference between S and C . One reason for wishing to avoid using ($S - C$) is that, because it is a difference term, it is less reliable than S and C (as explained below). Therefore, using the main effects of S and C reduces measurement error, leading to a stronger relationship that more accurately captures the true effect of misfit on performance. Thus, the Edwards method offers the opportunity for contingency theory to show more strongly the true effect of misfit on performance.

Edwards goes on to use this unpacking technique for other versions of the effect of misfit on performance, such as the squared term, which theoretically means that the effect of misfit is much worse at each level of misfit (methodologically, squaring also means that negative values of misfit are avoided, so no additional term is needed and these actual equations can be used):

$$P = a - bM^2 = a - b(C - S)^2 = a - bC^2 - bS^2 + 2bCS$$

This is a polynomial regression. Its meaning is that the slopes (b 's) for C^2 and S^2 should both be the same magnitude and sign (negative). And, the slope ($2b$) of the CS term should be twice that of the slopes (b 's) of each of C^2 and S^2 , and also be of the opposite sign to them. Thus, again, there is a pattern of testable predictions about the similarities and differences in the magnitudes and signs of the b 's (i.e., the partial slope coefficients of each term controlling for the other two). Once again, the effect of the misfit, the difference between C and S , has been re-expressed into main effects, here of C^2 and S^2 . Either the slope of the C^2 or the S^2 term gives b , the effect of misfit (M) on performance (P). Thus, again, the method yields an estimate of the effect of misfit on performance, without having to use the difference term, $(S - C)$.

Edwards goes on to argue that in empirically testing this equation, it is incumbent upon the researcher to also include lower order terms, thus the equation becomes:

$$P = a + b_1C + b_2S - b_3C^2 - b_4S^2 + 2b_5CS$$

This fuller equation allows evaluation of whether effects apparently attributable to the terms C^2 , S^2 and CS , and thereby caused by misfit squared, are really due to simple main effects of C and S on performance. (There are other methodological reasons for including C and S whenever CS is being evaluated.) Subsequently, Edwards goes further and says that when this quadratic (C^2 and S^2) is being evaluated, not only the lower order terms, C and S , but also the higher order terms, e.g., C^3 and S^3 , should be included and evaluated. Thus, Edwards imposes a series of additional tests beyond simply showing effects of the quadratic. More generally, he argues that for polynomial regression to be valid, the researcher must incorporate lower order and higher order terms to show whether some of the effect is really due to them. In his empirical example, using the fuller equation shows effects beyond just that of the quadratic.

Hence Edwards' method contains two ideas. One is the ingenious idea of using a simultaneous test of main effects of S and C to test for the effect of misfit. This offers an alternative method from the conventional one of testing for misfit effect by evaluating the effect of the difference between S and C on performance. Edwards' second idea is his requirement that any evaluation should also test the lower and higher order terms, that is, the fuller family of terms, from which a particular level of the polynomial is a sub-set. This addition of lower- and higher-order terms to the regression equation could be done even where the difference between S and C is being

used. Thus, it is an addition to the conventional procedure, rather than being necessitated by replacing the difference term ($S - C$) by the simultaneous main effects.

The resulting analysis is more comprehensive. However, it also may mean that some effects that would be ascribed to misfit from a regression of performance on misfit will be shown to be partly or wholly due to these lower or higher order terms. It makes for a new and more demanding set of criteria of what is required to empirically confirm that misfit lowers performance. The researcher can no longer just use the misfit term, nor just use its unpacked simultaneous main effects equivalent. Thus, proving contingency fit may be harder when following the Edwards' method and in that sense it is a challenge.

3.2 Other methodological issues

The multivariate interaction term is sometimes used to operationalize the fit-performance relationship, despite the term being seriously deficient for iso-performance. Nevertheless, it provides some degree of proxy for hetero-performance. Corrections for unreliability can enhance the misfit-performance relationship and this is particularly needed in fit-performance research because of the tendency of misfit to be measured unreliably. Developments in methodology also allow the study of whether managers already know about fits before research is conducted.

3.2.1 Multiple interaction term and iso- and hetero-performance

Some contingency analyses use the multiple interaction term of contingency (C) multiplied by structure (S), i.e., $C \times S$, to operationalize the effect of fit on performance. However, Donaldson (2001) has shown that this mathematical function fails to capture the contingency theory relationship between misfit and performance, in its iso-performance form.

In contingency theory, misfitted organizations are lower in performance than organizations in fit, i.e., on the fit line (Van de Ven and Drazin, 1985). For an organization in fit at $C = S = 3$, its performance is higher than an organization in misfit above the fit line at $C = 3$ and $S = 4$ (Figure 2.2). However, the multiple interaction term of performance, $C \times S$ (see Figure 2.5), states that performance at that point above the fit line, at $C = 3$ and $S = 4$, is 12 (i.e., 3×4), that is, greater than performance on the fit line at $C = S = 3$, which is only 9 (i.e., 3×3). Yet this is clearly wrong, in that misfit should produce lower performance than fit. In fact, the multivariate interaction term gives performances greater than fit for all points above the fit line, which is wrong for all of them. Moreover, for points above the fit

line, the greater their distance from the fit line, the greater their performance exceeds points in fit. Thus, the greater the misfit, the higher the performance – which contradicts the theory it is supposed to capture.

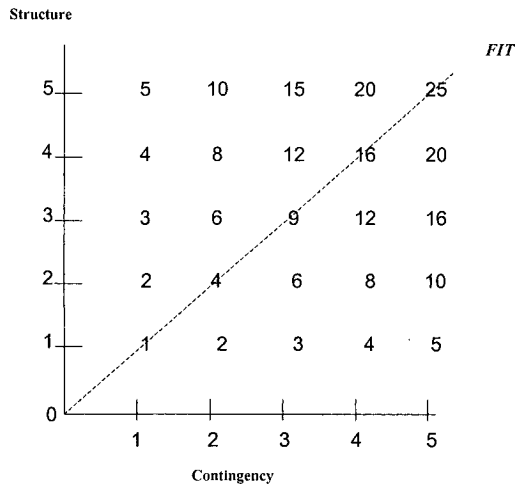


Figure 2.5. Performance from Fit and Misfit: Fit as a Multiplicative Interaction of Contingency and Structure

In contrast, if the misfit term, the absolute difference of $C - S$, is used to predict performance (Figure 2.2), then the performance of the point above the fit line of $C = 3$ and $S = 4$ is -1 , which is less than the point in fit at $C = S = 3$, which is 0 . Thus, the misfit, $C - S$, term gives the theoretically correct operationalization of the effect of misfit on performance, whereas the multivariate interaction term ($C \times S$) does not.

It may be objected that the multivariate interaction term is not an exact operationalization of the fit-performance relationship but it is a reasonable approximation for use in empirical work. However, a simple simulation shows that the correlation between misfit, $C - S$, and the multivariate interaction term, $C \times S$, is only weak, so that the latter is a poor operationalization of the former. The fit-performance relationship in this simulation is the traditional contingency theory relationship, which is iso-performance.

For the newer concept of hetero-performance, the multivariate interaction term correlates moderately with performance. Thus, the multivariate interaction term is a better proxy for hetero- than iso-performance. Hence, a positive correlation between the multivariate interaction term and performance should be regarded tentatively as some evidence for possible hetero-performance. Thus, the multivariate interaction term may produce evidence, not for the traditional concept of iso-performance, but for the new concept of the hetero-performance.

The multivariate interaction term is a much better operationalization of hetero- than iso-performance, in part because it contains the increasing performance along the fit line that defines hetero-performance, e.g., at $C = S = 2$ performance is 2, at $C = S = 3$ performance is 3 (Figure 2.4). For the multivariate interaction term, points along the fit line increase in performance: for $C = S = 1$ performance is 1 (i.e., 1×1), for $C = S = 2$ performance is 4 (i.e., 2×2) etc (Figure 2.5).

3.2.2 Unreliability

Structural contingency theory researchers have not traditionally acknowledged that misfit suffers from a problem of low reliability. However, misfit is a difference score, $C - S$, and the problem that difference scores tend to have lower reliability is well recognized among psychometricians. A difference score can have substantially lower reliability than its constituent variables (here C and S).

The unreliability of a difference score is greater the stronger is the positive correlation between its two constituent variables, e.g., C and S . In structural contingency research, C and S are often highly positively correlated, e.g., size and specialization (Donaldson, 1996). If C has a reliability of 0.8 and S has a reliability of 0.8 and both are correlated +0.6 (and assuming both C and S are standardized) then the reliability of the difference score ($C - S$) can be calculated as being 0.5 (Johns, 1981). Thus, while C and S may be quite highly reliable, their difference ($C - S$), the misfit term, can be far less reliable.

Unreliability makes the observed correlation in an empirical analysis under-state the true effect. If the true effect of misfit on performance is 0.4 but misfit has reliability of only 0.5, then the observed correlation will be the product of 0.4 and the square root of 0.5, which is 0.28, producing an observed correlation of only 0.28. Thus, the observed effect under-states the true effect by 30 per cent. Given the low power of many statistical tests, such smaller correlations could lead to erroneous verdicts of "not significant" and so to mistaken falsification of theory (Hunter and Schmidt, 2004). Thus the unreliability of difference scores is a potential trap in

research. The Hunter-Schmidt (2004, p. 34) procedure of applying a formula can be used to correct the observed correlation so that it becomes closer to the true value.

3.2.3 The value of modest correlations

Even where a correlation between fit and performance is significant, a coefficient of, say, 0.25 may be judged to be “too small to be of theoretical or practical significance”. Yet, in analyzing the effect of structural fit on performance, the existence of many other causes of performance mean that fit may well have a coefficient such as only 0.25. Thus, theoretically, one should expect smallish coefficients at best. For instance, if there are ten causes of performance that are independent of each other and all have equal effects, then each will correlate only a little over .3 with performance. The reason is that a correlation of 0.3 explains 9 per cent of the variance in performance, so ten such would explain 90 per cent. Therefore, because of multiple causes of organizational performance, any one cause, such as structural fit, may have a correlation of only about 0.3, and yet be theoretically meaningful.

Moreover, contingency theory holds that there are fits between each of numerous structural variables and their contingencies. Therefore the correlation between any one contingency-structure fit and performance measures only part of the total effect of structural fit on performance. Therefore, even if the total fit effect is substantial, any one contingency-structure fit is theoretically expected to be small.

The objection might be made that such a 0.25 correlation is not practically significant, explaining only 6.25 per cent of the variance in performance. However, a correlation of 0.25 equals a standardized slope coefficient of 0.25 (Hunter and Schmidt, 2004). Therefore, a one standard deviation increase in fit causes a one-quarter standard deviation increase in organizational performance. This is hardly a trivial effect. It has considerable importance practically. Thus, even modest fit-performance correlations can have considerable theoretical and practical value.

3.2.4 Managerial mental models

The question arises of whether the fits identified in structural contingency research are already obvious to managers through their experience. A study showed that not all managers are aware of the organic structures needed to fit environmental change, so that organic theory is not obvious (Priem and Rosenstein, 2000). Extension of this type of research to all the contingency and structural fits would be salutary, to address concerns

that structural contingency theory is obvious to practitioners. The methodology used by Priem and Rosenstein (2000) would seem to be applicable to any contingency structural fit, which should facilitate research.

4. CONCLUSIONS

Structural contingency theory can play a role in organizational design by specifying which structures fit which circumstances. While the heart of the theory is the statics of the effect of such fit on performance, the theory is also dynamic. Specifically, Structural Adaptation to Regain Fit (SARFIT) states how organizations change over time in their structures as a result of changes in their contingencies. Contingency change also is seen as endogenous in SARFIT, so that the theory posits disequilibrium rather than equilibrium. Similarly, there is scope for the development of structural contingency theory through the concepts of hetero-performance and quasi-fit. Consistent with this, structural contingency theory should continue to utilize a Cartesian, rather than a configurationalist, approach to fit. Claims that structural contingency theory is being rendered obsolete by new technology lack credibility.

Institutional theory posits adaption to the institutional environment but there are many shortcomings in the theory and its research.

Structural contingency theory is greatly assisted by research that empirically establishes that the relationships it posits between fit and performance are valid. The Edwards polynomial regression method provides an alternative way to assess the impact of misfit on performance. It locates this analysis in a more comprehensive analysis that makes for more exacting tests of contingency theory.

While the multivariate interaction term is sometimes used to operationalize fit-performance relationships, it is a very poor measure of the traditional fit-performance theory, iso-performance. However, positive results from multivariate interaction terms may be cautiously interpreted as some tentative encouragement for hetero-performance theory.

Misfit terms suffer from lower reliability and this can be corrected to give a more accurate estimate of the strength of these relationships. Thus improvements in methods may assist research to show a truer and more appreciative picture of the effect of fit on performance. However, there are theoretical reasons for expecting modest correlations, which, nevertheless mean that organizational design is of practical usefulness.

4.1 Informing the theory

Structural contingency theory informs the theory of organizational design by providing a comprehensive framework that relates variations in organizational design to variations in the situation of the organization (i.e., its contingencies). Many different aspects of organizational structure, such as formalization, decentralization and divisionalization are each related to contingencies such as size and diversification. In theory terms, contingency theory is sociological functionalism, explaining the existence of fits between structure and contingencies by their beneficial effects on organizational performance. However, the functionalist argument is incomplete without explaining why organizations move along the fit line by increasing their contingencies, e.g., size. The concept of hetero-performance provides the answer by holding that moving along the fit line increases performance. Functionalisms can lead to the notion that once having attained fit, this is equilibrium, however, the present theory is of disequilibrium. The theory herein posits that the higher performance from fit causes expansion and thus a new move in to misfit. Thereby, the theory is both functionalist and dysfunctionalist, in a model of organizational dynamics. Change occurs incrementally, producing a realistic theory of organizations.

4.2 Informing the practice

Organizational design can help managers to better attain higher performance for their organizations by adopting a more effective structure. The contingency approach helps managers to identify misfits between their structures and contingencies, such as size and diversification, which, in turn, are parts of the strategy of the organization. Given that there are numerous aspects of structure and that each may have more than one contingency that it fits or misfits, there are many possible misfits that can occur in an organization, each dragging down performance. Because there are multiple possible misfits – as well as multiple other causes of organizational performance – each misfit may have only a modest negative effect on performance. However, researchers should not dismiss such modest effects as being “not significant”, because managers who rectify a misfit can achieve worthwhile performance gains for their organization. By rectifying several misfits in organizational design, they can achieve substantial gains. It is in the nature of management that managers need also to solve problems in many other aspects of their organization, such as finance and marketing. By solving organizational design problems, while also solving these other problems, management can gain competitive advantage over rival organizations. The dynamic model offered here implies the added caution

that such successes trigger growth etc and so new moves into misfit. Thus, managers, especially in fast changing organizations, will need to revisit organizational designs every few years, in order to avoid misfit and performance loss.

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PART 2: FIT, CONTINGENCY, AND CONFIGURATION

Chapter 3

EXAMINING THE RELATIONSHIP BETWEEN TRUST AND CONTROL IN ORGANIZATIONAL DESIGN

(How) Can Divergent Requirements be Reconciled?

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Abstract: Recently, organization design has been confronted with divergent demands. Whereas many organizational forms recommended to enhance organizational performance build on trust, control-oriented forms are suggested to assure compliance with an increasing number of regulatory norms. Companies face the challenge to meet both requirements concurrently. Against this background, this chapter examines whether the contrasting demands do in fact involve trade-offs and if so, whether and how they could be reconciled. Reconciling different demands may benefit from considering the following steps: Distinguish functional demands from concrete structural forms; analyze behavior which is critical for achieving the functional requirements; analyze contingencies of critical behavior and arrive at an informed behavioral assumption; design the organizational form by deliberating alternative structure building and structure flanking measures which are effective for facilitating critical behavior. If different demands have to be met simultaneously, the design elements must be thoroughly balanced.

Key words: Organization Design, Trust, Control, Configuration, Organizational Behavior

1. CURRENT APPROACHES TO ORGANIZATIONAL DESIGN: TRUST AND CONTROL

Organization design is a cornerstone for achieving corporate performance (Galbraith, 1994). More recently, firms have been confronted with several remarkably divergent demands concerning the appropriate design of

organizational structures. To prosper, firms need to combine, for instance, change and preservation (Volberda, 1996), exploratory and exploitive innovations (March, 1991) or alignment and adaptability (Gibson & Birkinshaw, 2004). Firms that successfully manage such tensions have been called ambidextrous (Gibson & Birkinshaw, 2004; Jansen, Van den Bosch, & Volberda, 2005). This chapter deals with a tension that is currently a particularly relevant issue in organizational design but has still received too little attention in the literature. On the one hand, associated with an emerging management paradigm (Daft, 2000) new organizational forms have been suggested in order to build efficient organizations able to cope with fierce competitive forces. Among the most salient, interrelated characteristics of these forms are, for instance, accentuated participation, delegation or 'empowerment' (Conger & Kanungo, 1988; Lawler, 1993; Spreitzer, 1996), lateral communication structures (Galbraith, 1994), self-contained autonomous units (Child & McGrath, 2001; Nadler & Tushman, 1997) and self-managed teams (Randolph & Sashkin, 2002). Especially in fast-changing, highly competitive environments, applying these principles to organization design may help to form an organization which is able to react more flexible to changing market requirements (Lampel, 2004) and which is more innovative as it supports 'intrapreneuring' (Pinchot, 1985). A common thread of (most of) the new design features is a high level of trust in employees' capabilities as well as their motivation to strive for higher company performance under these organizational conditions (cf. Child & McGrath, 2001; Forrester, 2000; Lewin & Volberda, 1999; Mayer, Davis, & Schoorman, 1995). The more trustworthy employees are perceived to be, the less an organization will monitor them (Langfred, 2004).

On the other hand, notably distinct organizational requirements have increasingly received attention. Driven by corporate scandals, especially writers on corporate governance have recognized the problem of ensuring that all employees of a company act in conformance with various norms at the legal ('hard law', e.g., the Sarbanes-Oxley Act of 2002) and sub-legal ('soft law', e.g., codes of good conduct) level (compliance). Since breaking laws can result in penalties of hundreds of millions of dollars, a loss in reputation, and liability of top managers (e.g., Dalton, Metzger, & Hill, 1994: 8-9; Paine, 1994: 109), conformance with all rules which are relevant for a particular company has become a crucial managerial task (Dalton, Metzger, & Hill, 1994). However, with an ever increasing number of regulations and daughter companies in various foreign countries operating in diverse legal settings, this task is anything but easy to accomplish. Strategies usually adopted for achieving compliance tend to reduce individual discretion and apply controls in combination with penalties to enforce rules (Banaga, Ray & Tomkins, 1995; Paine, 1994). An example would be the

Sarbanes-Oxley Act which comprises several provisions that are supposed to improve the accuracy and reliability of corporate disclosures. In particular, one rule has attracted a great deal of attention. Sec. 302 requires the CEO and CFO to personally certify the accuracy of their firm's financial reports, meaning that they may not contain any untrue statement of a material fact or omit important information in order to make the statements not misleading. Moreover, the officers are held responsible for establishing and maintaining an adequate internal control structure and procedures for financial reporting and have to evaluate the effectiveness of these controls with respect to their appropriateness for ensuring that material information will be made known to the officers (see Sec. 404). According to first experiences of large corporations such as DaimlerChrysler and SAP, implementing these far-reaching provisions requires, for instance, precise definitions of processes, high degrees of formalization and standardization as well as a hierarchical system of controls in order to assure correctness of the financial statements of the company (see Buderath, 2004; Hütten & Stromann, 2003). Of course, the design of effective control systems is not confined to the accounting department, but includes other functions like the sales staff as well (Osterloh & Frey, 2004: 195).

Trust-based and control-based organizational forms seem to represent different and at first glance conflicting developments of organizational design (see also Child & Rodrigues, 2003). Against this background, the aim of this research is to examine, whether and how the contrasting demands can be reconciled. To this end, first of all each of the two different logics for organizing will be discussed in some more detail and the relationship between trust and control will be more thoroughly examined. As a second step, the question of reconciliation is addressed by considering four different models of working with theoretical tensions suggested by Poole & Van de Ven (1989). From an organization design point of view the fourth strategy (introducing a new perspective to resolve the paradox) is most desirable. Therefore, the problem is analyzed from a mainly configurational perspective (Gresov & Drazin, 1997).

2. DIFFERENT AND PARTIALLY CONFLICTING LOGICS FOR ORGANIZING

The core of organization design is to divide labor and establish forms of cooperation such that decisions will be based on the best possible basis of information while at the same time the costs for coordination should be as low as possible (e.g., Burton & Obel, 1998; Galbraith, 1974, 1977; Tushman & Nadler, 1978). Thus, the design of organizations is primarily concerned

with the efficiency of information flows within organizations. From this perspective, a major issue for organizational design is to cope with uncertainty where uncertainty pertains to task-related information. However, it is important to note that uncertainty does not only pertain to the distribution of task-related information, but also to the characteristics of organizational actors involved in task accomplishment. In particular, with regard to relationships in organizations, there is more or less uncertainty about the competencies, the work motivation, as well as the willingness to cooperate of an actor (cf. Jaffee, 2001: 22; McEvily, Perrone, & Zaheer, 2003: 92). Trust and control can be regarded as different approaches to deal with the problem of uncertainty in interpersonal relationships (e.g., Das & Teng, 1998).

2.1 Trust

There is substantial agreement as to the fundamental meaning of trust (Rousseau, Sitkin, Burt, & Camerer, 1998). Trust can be defined as “the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party” (Mayer, Davis, & Schoorman, 1995: 712, original in italics). A trust-based approach to organizational design builds on a behavioral assumption that views organizational actors as capable and motivated to behave pro-organizationally (Mayer, Davis, & Schoorman, 1995; Sitkin, 1995) (see figure 3.1). This assumption corresponds to the model of man applied by the famous Theory Y (McGregor, 1960) as well as the more recently proposed stewardship theory of management (Davis, Schoorman, & Donaldson, 1997; Donaldson & Davis, 1991). As a consequence, the existing level of uncertainty about organizational members’ abilities and intentions is accepted up to a certain degree. In other words, no attempt is made to reduce uncertainty, but some amount of ambiguity is allowed for.

Trust has been an important basic principle for several new ways of organizing (Child & McGrath, 2001; Forrester, 2000; Lewin & Volberda, 1999; McEvily, Perrone, & Zaheer, 2003: 99). If subordinates are expected to possess abilities required for task fulfillment and to be willing to work pro-organizationally (instead of trying to maximize their own utility), organization design would entail granting autonomy to subordinates (McEvily, Perrone, & Zaheer, 2003: 98). By granting autonomy to subordinate levels of the hierarchy, (vertical) coordination costs may be saved while at the same time – under the specified behavioral conditions – a satisfactory level of decision quality can still be achieved since decisions can

be made directly where information is available in the organization without first delivering it to an upper level (v. Werder & Grundei, 2001).

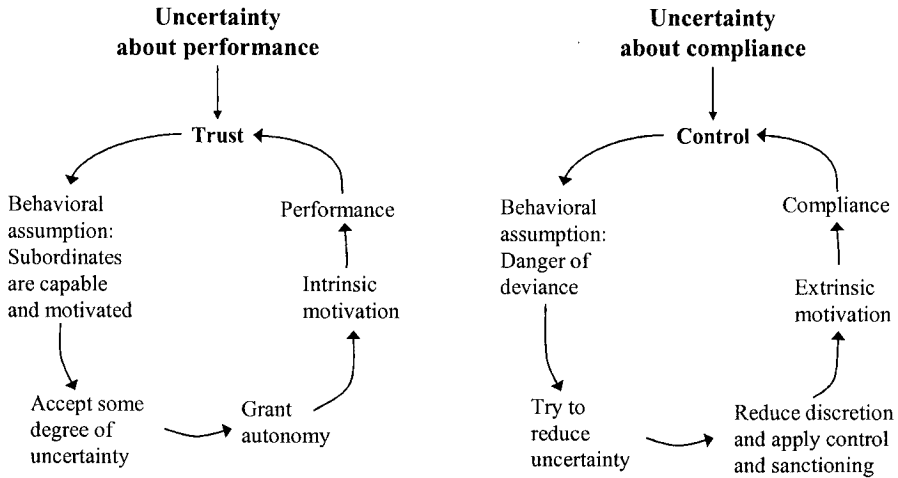


Figure 3-1. Trust and Control as Alternative Logics for Organizational Design

Since trust does not depend on monitoring (Mayer, Davis, & Schoorman, 1995) and rewarding or punishing the trustee, it focuses on the trustee's intrinsic motivation (see also Davis, Schoorman, & Donaldson, 1997). Intrinsically motivated individuals shall be empowered with large discretion for decision making. For instance, from a stewardship perspective the pro-organizational behavior of top managers is best facilitated when they have high authority and discretion. Hence, CEO duality would be preferred over separating the posts of CEO and board chairman as a form of firm governance (Donaldson & Davis, 1991). In effect, these organizational forms are suggested to be powerful tools for enhancing performance.

However, it seems that other relevant goals for the design of organizations have not received sufficient attention in this approach. One such goal has gained particular attention most recently. It is the compliance with legal or quasi legal regulations. While different approaches are conceivable for achieving compliance, strategies usually adopted for

attaining compliance tend to reduce individual discretion and apply controls in combination with penalties to enforce rules.

2.2 Control

Interestingly, the compliance problem is dealt with in a different way than the problem of task performance (figure 3.1). It appears that a classical agency approach is the guiding idea in this regard. Again, firms face problems of uncertainty. Especially in large global corporations there is doubt about whether or not all employees will always comply with the relevant norms. But this form of uncertainty is not met by simply trusting employees that they will comply but, rather, by controlling their conduct (Jaffee, 2001: 118). From this perspective, decentralized structures entail an agency problem holding the risk that employees do not behave in the way that is expected of them (Mills & Ungson, 2003). In fact, the model of man underlying this theoretical model is that of a rational actor seeking to maximize his/her personal utility (Jensen & Meckling, 1976). Although scholars of organizational economics do not argue that all agents always act opportunistically, it would be costly (if not impossible) for the principal to differentiate *ex ante* between opportunistic and honest transaction partners. Therefore, as a precaution, opportunistic behavior is supposed, and as a consequence, some sort of control is deemed inevitable in order to ensure compliance and thereby limit potential losses (Williamson, 1985; Williamson, 1993). Controls entail monitoring behavior or output and comparing the results with some required standard. By means of punishment misconduct shall be deterred. Hence the focus is on extrinsic motivation. As a result, employee discretion is limited. So, one tries to lessen information asymmetry and to make behavior more predictable to reduce the risk involved. Considering the high stakes involved, it seems likely that top executives (as principals) are risk-averse and will actually prefer such agency-based design prescriptions (Davis, Schoorman, & Donaldson, 1997).

Note that I do not talk about trust in this context although some scholars probably would call it sanction-based or institution-based trust (e.g., McKnight, Cummings, & Chervany, 1998). However, based on the definition of trust adopted here, in this case I would not talk of trust or trust in the operativeness of the control system at the most – a point I will return to.

2.3 Interrelationships between trust and control

Both the performance/trust approach on the one hand and the compliance/control perspective on the other to the most part have been

treated separately from one another. This makes sense as each presents a closed circle which appears logically consistent. However, companies face the challenge to meet both requirements simultaneously (cf. Gibson & Birkinshaw, 2004). Therefore, the relationship between trust and control must be more closely scrutinized. Basically, there are two kinds of relationship between the two concepts, which I call synergistic and antagonistic relationship, respectively.

2.3.1 Synergistic relationship: mutual reinforcement of trust and control.

This view starts with the (implicit or explicit) assumption that trust and control are separate concepts that can be applied in parallel to foster overall confidence (Das & Teng, 1998; Poppo & Zenger, 2002) and coordination (Adler, 2001). Thus, both can have an additive relationship at least in that the positive effects of each can be added up. More importantly though, each can enhance the effectiveness of the other (synergistic relationship).

On the one hand, trust may enhance the effectiveness of control systems (cf. Das & Teng, 1998: 502-503). Control mechanisms may have several dysfunctional side effects such as, e.g., behavioral displacement, gamesmanship and the like (see Merchant, 1985). Therefore, to be really effective, it seems that control systems require a certain level of (mutual) trust in order to generate an adequate level of control.

On the other hand, control may also be a relevant factor for achieving trust – a point that has received some more attention in the literature. Essentially, there are two lines of reasoning for this. The first one pertains to the development of trust over time. While people may also have a disposition to trust or distrust (McKnight, Cummings, & Chervany, 1998), with regard to a particular relationship it is likely that specific positive and negative experiences as well as the institutional environment are relevant factors that influence an incremental development of trust. Accordingly, a party may trust in small ways, observe the consequences, and then trust more or less, depending on the consequences (Inkpen & Currall, 2004: 591). Since controls are objective evaluations and may ultimately provide a track record, trust between the parties may eventually be nurtured and strengthened (Das & Teng, 1998: 501). This is a cognition-based form of trust in contrast to an affect-based dimension of trust (McAllister, 1995). The second argument holds that a formal control system may take some of the load off the actors to verify behavior. Through the protection offered by the control mechanism, some energy will be available to turn to the trust-laden approach (cf. Sitkin, 1995: 193).

Before I will turn to the contrary viewpoint, maintaining that control mechanisms will undermine the level of trust in relationships, I want to consider two contra-arguments which do not necessarily claim that the opposite view is true, but which question that there is a positive relationship between control and trust.

First, both trust and control could in fact be alternative mechanisms for coordinating relationships such that one excludes the other. It has been argued that monitoring is only necessary because of a lack of trust (cf. Ouchi, 1979; Rousseau, Sitkin, Burt, & Camerer, 1998). Indeed, both control mechanisms and trust are alternative ways of coping with uncertainty about another party's behavior, where one strategy tries to reduce uncertainty whereas the other is willing to accept it. If both were completely independent, parallel concepts, even high levels of both trust and control could theoretically be combined. However, in a situation with tight controls, there is neither room nor a necessity for trust and vice versa. The definition of trust adopted here maintains that trust is the willingness of a party to be vulnerable to the actions of another party, irrespective of the ability to monitor or control that other party (Mayer, Davis, & Schoorman, 1995: 712). Moreover, in terms of decision making responsibilities granted to organizational members, trust and control philosophies would have different consequences and it is not easy to conceive of a combination (e.g., high and low centralization at the same time) (see also Burton & Obel, 1998). Finally, the antagonistic relationships discussed later also support the notion that the two concepts cannot be combined arbitrarily.

The second point has received only rare attention. Specifically, one must not forget that trust – and also control – in principle relates to different content domains. For instance, one party may trust another party to successfully perform task A but not task B. More importantly, while the trusting party may trust in an individual's honesty and integrity (compliance), at the same time may not be convinced that the other party has the ability or the motivation to be a good performer. Control systems which aim to ensure compliance with certain regulations primarily provide information about compliance, but not about this person's (or group's) task performance. In contrast, the trust-basis of the new organizational forms pertains to individual employees' or groups' competences and goodwill to deliver a level of task performance. Thus, the question arises whether experiences in one domain will spill over to another domain. At least initially, trust seems to be domain-specific; with more and broader experiences it may become more likely that expectations will apply across domains (cf. Sitkin, 1995: 198). However, experiences could also lead to more and more specific and differentiated expectations. In sum, it seems

questionable whether results from compliance-controls will support trust in employee performance.

2.3.2 Antagonistic relationship: control undermines trust

The second view explicitly takes into account that organizational strategies may also have unintended consequences (Jaffee, 2001: 34-38). Accordingly, control mechanisms may even be harmful as they may damage trust in a relationship. To comprehend this problem, it is helpful to distinguish between implications for the supervisor and those for the subordinate in a vertical relationship within the organizational hierarchy.

There may be two undesirable implications on the supervisor level. The first one can be derived from attribution theory. Accordingly, the supervisor would try to explain to himself the causes for subordinate's behavior, i.e., compliance or deviance. If a costly control system has been implemented, it seems likely that s/he will attribute compliance primarily to the functioning of the system rather than to the subordinate's integrity (see also Inkpen & Currall, 2004: 591; Sitkin, 1995: 196; Strickland, 1958). This is due to the fact that in a situation of uncertainty the supervisor cannot be sure whether or not a person's proper conduct has occurred voluntarily. If cases of non-compliance are attributed to dishonesty of an individual or a group of employees, then the necessity of having control mechanisms will be confirmed and maybe they will even be made more close. Thus, the supervisor trusts the control system but not his or her subordinates. This equals what some have called institutional trust (e.g., McKnight, Cummings, & Chervany, 1998). It seems important to note that this is a form of trust in the institutional context and, therefore, may at best be a mediated form of trust in the individual. This effect may be called a crowding out of trust in the trustee.

The second problem can be referred to as goal displacement, meaning that the control system may be seen as an end in itself rather than a means to fostering trust (Sitkin, 1995: 207-208; see also Kerr, 1975: 772; Merchant, 1985: 75). Under these circumstances, the control information will not be used (consciously) to build trust and, as a consequence, no attempt is made to substitute trust for control in order to reduce uncertainty.

On the subordinate level, monitoring compliance may also lead to adverse effects. In particular, there is a danger of a downward spiral of control and trust. Basically, that can be put down to the view that intrinsic and extrinsic motivation are not additive (e.g., Osterloh & Frey, 2004). The new organizational forms mentioned earlier probably do not go completely without controls either. Specifically, inputs such as budgets and outputs (performance) will usually be subject to some kind of surveillance.

However, the new organizational forms to a large extent do without behavioral controls (see also Child & Rodrigues, 2003: 345). But compliance controls are essentially behavioral controls. As a consequence, employee behavior is now at least partly controlled again. Such controls signal that controllees are not trusted to behave appropriately without them (Ghoshal & Moran, 1996; Pfeffer, 1994). Therefore, whereas trust and autonomy would probably enhance perceived competence and self-determination, behavior controls are likely to produce the contrary effect. According to cognitive evaluation theory (Deci, 1975), intrinsic motivation of subordinates would be crowded out (Osterloh & Frey, 2004). Voluntary dedication and extra role behavior may shift to compulsory, yet perfunctory compliance and work-to-rule (Ghoshal, 2005; Ghoshal & Moran, 1996). In a similar vein, Morrison & Milliken (2000) argue that widely held managerial beliefs such as “employees are self-interested” and “management knows best” lead management to set up structures and policies that impede upward information flow. In a climate of ‘organizational silence’ employees feel that their knowledge is not valued and they will hold back information that might actually be useful for effective organizational change processes. Since trust largely pertains to the (intrinsic) motivation of the trustee, a diminishing motivation – which was actually caused by the control system – will be observed and will finally result in a loss of trust and the perception that increased surveillance is required (Enzle & Anderson, 1993).

In sum, trust and control are at least partly controversial concepts and hence present a puzzle for the design of organizations.

3. CAN TRUST AND CONTROL APPROACHES TO ORGANIZATION DESIGN BE RECONCILED?

Although the challenge to reconcile disparate requirements has been recognized, research as to how such a reconciliation may be worked out has been unsatisfactory. For example, Child & Rodrigues (2003), *inter alia*, suggest to promote more inclusive forms of control, mutual monitoring as well as trust in order to reconcile new organizational forms with a need for governance. Gibson & Birkinshaw (2004) emphasize the importance of contextual arrangements for achieving ambidexterity, but at the same time remain rather vague about how contextual factors may be selected and combined.

In order to more systematically search for ways to handle the design dilemma, I will refer to Poole & Van de Ven (1989) who have suggested four ways to address theoretical tensions in organization theories: opposition, spatial separation, temporal separation, and synthesis. Each will

be considered with regard to the two opposing approaches to organizational design.

3.1 Opposition

The first response is to accept the contradiction (Poole & Van de Ven, 1989). It seems that to a large extent this has been the dominant way to deal with the antagonistic approaches. As a consequence, most theorists have considered either trust or control but have not been concerned with combinations and interrelations of the two concepts. For a particular design problem this strategy would eventually require to decide which of the two approaches is 'right' or 'wrong'. For example, at least under certain circumstances, McGregor (1960) argued for the superiority of Theory Y over Theory X. v. Werder & Grundei (2001) consider authority and autonomy as two basic yet opposite mechanisms linking organizational structure with individual behavior. Therefore, both effects have to be regarded as alternatives and in the end the practicing manager has to decide which of the two underlying motivation theories holds (at least in a particular situation) or which effect in his or her eyes promises a better impact on employees' motivation.

Whereas the first method contrasts the two approaches without actually trying to solve the paradox, the next two methods try to find a resolution by separating different levels of analysis or different time periods, respectively. Thus, "[b]oth sides of the paradox are assumed to be fundamentally sound, and the paradox is resolved by separating them and specifying how one side influences the other." (Poole & Van de Ven, 1989: 567).

3.2 Spatial separation

The second response clarifies different levels or loci of analysis. In general, this is an important aspect of the problem I address. Both trust and control are relational constructs, i.e., they occur between two (or more) parties, where each party may be an individual or a group. Referring to the concept of organizational hierarchy, there are basically three different relations where trust and control may be exercised. First is the trust or control of the supervisor vis-à-vis his/her subordinates. Second, the subordinates may also trust their supervisor and in a way 'control' his/her behavior (e.g., compare his/her actual behavior to a desired or promised form of leader behavior) (e.g., Simons, 2002). Third, trust and control are also relevant between co-workers, i.e., on the same level of hierarchy (e.g., Langfred, 2004). For instance, one group member may or may not have trust

in the capabilities of a fellow group member and a group may try to control the behavior of individual group members (e.g., Ouchi, 1979).

If trust and control relate to different levels, both may easily be observed at the same time and there might in fact be no conflict at all. However, though in some instances these levels may not have been sufficiently clarified, within the scope of this chapter I address only the first level, i.e., the top-down relationship between a supervisor and his/her subordinates. Since the contradiction seems to be salient on that level, additional clarification cannot be gained from separating levels.

More generally, though, the idea of (spatial) separation could also be conceptualized as separating different contingencies. Contingency theory suggests that there must be a fit between the organizational form and relevant characteristics of the situation (e.g., Burton & Obel, 1998; Donaldson, 1996). Accordingly, both control and trust could be viable forms of organizing, but only under different circumstances. Apparently the most critical contingency in this connection is the behavior of the subordinates. For example, important person-specific contingencies could be the degree to which the subordinate identifies with the corporation's goals and his/her reputation for having certain desirable competencies. Accounting for several contingencies will determine which of the two alternative approaches has a higher situational validity. Davis, Schoorman, & Donaldson (1997) follow this path by suggesting that the legitimacy of agency theory and stewardship theory, respectively, cannot be decided upon in general, but depends on several circumstances. This notion of contingency will be incorporated in the synthesis section.

3.3 Temporal separation

The third approach takes time into account (Poole & Van de Ven, 1989). Accordingly, the two contrary assumptions may hold during different time periods, and each may influence the other through its prior action. For example, in a situation of crisis tight controls may be appropriate in order to manage a turnaround. In turn, this may set the stage for increasing prosperity and, thus, a period in which trust is the dominant organizational approach. However, taking the two underlying objectives, performance and compliance, into account, it is usually not an option to strive for only one of them at a time. Therefore, temporal separation can only very limitedly help to resolve the tension.

3.4 Synthesis: creating balanced organizational designs

The fourth strategy Poole & Van de Ven (1989) suggest is to find a new perspective which helps to eliminate the opposition between trust and control (synthesis). I will pursue this final course by analyzing the problem through a primarily configurational lens. Therefore, I will employ and elaborate on the basic framework provided by Gresov & Drazin (1997) to suggest how both approaches may eventually be more fully integrated.

As Gresov & Drazin (1997) explain, any contingency (such as environmental change, technology, etc.) does not determine organizational structure. Rather, it places certain demands on the organization. Importantly, these demands exist on the level of functionality, not on the level of specific structures. The functional demands must be met by the organization with any set of structural arrangements. Therefore, multiple structural configurations may yield an overall capacity to meet the demand, i.e., more than one (combination of) structural option(s) may be available (equifinality).

Following this view, firms would have to meet two functional demands, performance (for example, high innovativeness) and compliance. While corporate performance is, of course, determined by several factors, organizational structure contributes to that performance by providing a certain information processing capacity (Galbraith, 1974; 1977; Tushman & Nadler, 1978). The structural options which have been considered here are trust-based forms (such as decentralization) and control-based forms (e.g., monitoring and sanctioning). A closer look at the structural forms which are associated with high levels of organizational performance and compliance, respectively, has revealed that there are potential conflicts between the structural alternatives which seem suitable to achieve either one of the demanded functions (design parameter misfit, Burton & Obel, 1998). For instance, generating innovations in an organization may be encouraged by granting discretion and by facilitating information flow (e.g., Gemünden & Salomo, 2004). At the same time, decentralization provides opportunities for undesirable behavior, too (e.g., Mills & Ungson, 2003).

The question which is largely unlooked at by Gresov & Drazin (1997) is, how functional demands and organizational forms are associated (figure 3.2). In order to fill this gap it must be acknowledged that, fundamentally, organizing forms are 'infrastructures' for organizational members' behavior. In other words, the functional demands are not directly met by the structures themselves. Rather, the demands may only be met by certain behaviors which are in part a function of the organizational structure. The main problem in finding an adequate structural option (which sufficiently contributes to satisfying the required functionality) is the uncertainty about organizational members' behavior. Although trust and control are often

correctly presented as alternative ways for coping with uncertainty about behavior – as I explained earlier in this paper – there is not an unequivocal relationship between either functional demand (i.e., performance and compliance) and one particular structural form (i.e., trust-based or control-based). Rather, the connecting link between functional demands and organizational forms is the behavioral assumption applied. The fundamental importance of assumptions regarding human nature for studies of organizations has been widely acknowledged (e.g., Ghoshal, 2005; Lichtman & Hunt, 1971; see also Simon, 1985). It is only because of a pro-organizational behavior assumption on the one hand and an opportunistic behavior assumption on the other hand that the particular forms would be selected as effective ways of organizing. Nevertheless, the notion of equifinality suggests that different forms are conceivable which are equally effective for achieving the desired functionality.

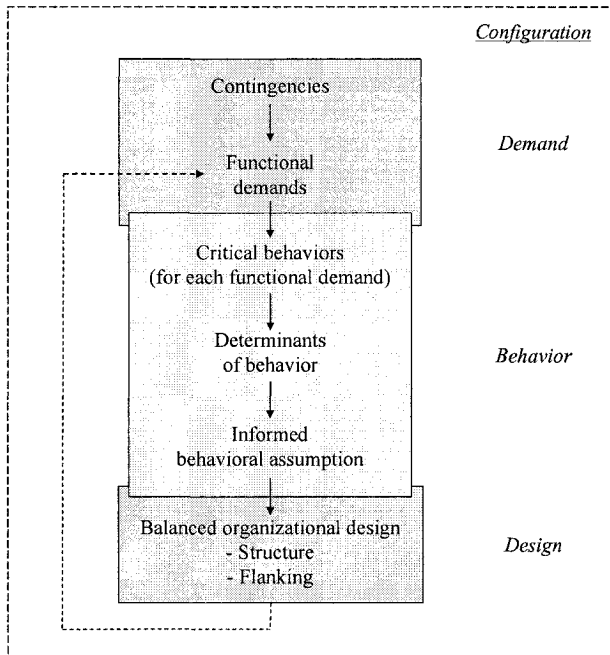


Figure 3-2. Creating Balanced Organizational Designs

Both general behavioral assumptions are quite strict and, therefore, each encompasses a certain potential design misfit. Specifically, building structure on the assumption of pro-organizational behavior holds the risk that some actors will not behave as expected but deviate in a significant way. On

the other hand, to assume that agents will behave dysfunctionally and, consequently, establish tight control mechanisms involves the danger of undermining the intrinsic motivation of those who are actually inclined to act pro-organizationally. Which assumption is chosen seems to depend, *inter alia*, on the risk one is willing to assume. Yet, due to the importance the behavioral assumption has, it seems desirable to develop more complex and, thus, more accurate behavioral assumptions. This requires to incorporate behavior into models of organizational design as a variable rather than a constant (see also Ghoshal, 2005; Ghoshal & Moran, 1996; Grandori, 2004). Only if the actual behavior fits the underlying model of man to a large degree, appropriate organizational structures can be found (see also Davis, Schoorman, & Donaldson, 1997; v. Werder & Grundei, 2001).

Arriving at more complex models of human behavior requires first to determine which conduct will be necessary to accomplish particular functional demands. This behavior may be called critical behavior (cf. Grundei, 1999). In order to assess to what extent the actual behavior meets the ideal type, the determinants of particular critical actions must be specified: What psychological and situational factors facilitate or impede the critical behavior? (see also Davis, Schoorman, & Donaldson, 1997). For instance, among the factors influencing compliance behavior are the internalized norms and values as well as instrumental beliefs about how 'useful' a misbehavior might be to satisfy personal interests (Vardi & Wiener, 1996). Hence, if people have high identification with the organization and its goals, emphasize group goals over individual goals and have not much to gain from contravening a norm, they are likely to work in conformance with the pertinent rules. In this situation close monitoring may not be required. Knowing the rules may be yet another determinant of compliance behavior. In a situation when new rules are established in a global group of companies, it might be necessary to explain the new regulations and provide training if necessary. This may be more effective to facilitate compliance than (only) monitoring employees' conduct. Under different circumstances, though, control mechanisms might be the best choice. For example, in an individualist culture with low commitment and high potential gains from deviant behavior, some controls may be mandatory. As a result, an informed behavioral assumption should be applied instead of a 'fixed' one.

On this basis, an appropriate organizational design can be tailored to the specific situation. In order to foster critical and constrain dysfunctional behavior, a variety of mechanisms may be at place. Organizational structures (decision making responsibilities and relationships between organizational units) form the core and are at the heart of the information processing/contingency perspective of organization design. Control systems,

however, are the focus of agency theorists (Eisenhardt, 1989). Hence, two different parameters for designing organizations, structure forming and structure flanking measures can be differentiated (v. Werder & Grundei, 2001). While structure forming measures define tasks, authorities, and information flows, flanking measures include control and incentive systems as well as several other mechanisms for reducing behavioral uncertainty such as, e.g., leadership and training¹. Together, all structural and flanking measures constitute the set of organizational arrangements which influences the behavior of organizational members and thus, in effect, the degree to which the functional demand is being accomplished. They may combine or substitute for each other to yield an overall level of behavioral confidence.

To be effective and efficient, any structure/flanking-combination is required to be consistent (e.g., Burton & Obel, 1998; v. Werder & Grundei, 2004). If different functional demands have to be met, this consistency may not mean that all design features are supportive of only one demand. Rather, there has to be some kind of balance (cf. Gebert, 2004; see also Volberda, 1996) since each 'extreme' form will have unintended side-effects, too. So, for instance, high autonomy without any leadership or orientation may not be recommendable. An overall effective organizational design may rather consist of high degrees of autonomy for task accomplishment as well as unambiguous guidelines for the rules that have to be followed during work. Even if controls seem to be inevitable, it might be desirable that they restrict employees' autonomy as little as possible in order to avoid negative side-effects. Hence, either self-assessments could be considered as an option and controls be limited to a 'meta-control' of the self-monitoring process or only spot checks are made. For example, Langfred (2004) suggested that even if a self-managing team consists of individuals who are trustworthy each, it may still be necessary to conduct some sort of (process) control in order to improve coordination among the team members. Thus, a high level of autonomy might best be combined with a little monitoring to raise group performance. As a result, neither a pure autonomy nor a mere control strategy is suggested. Rather, depending on the given design problem, it is requisite to devise a combination of design components that will most likely promote the desired (critical) behaviors and thus reduce behavior-related uncertainty.

¹ Note that these may also be regarded as certain forms of control strategies (Eisenhardt, 1985). However, by control I only refer to evaluations of behavior or output.

4. CONCLUSIONS

Issues of trust and control have been important issues for management and organization theory and practice. In the past, the dominant question was, whether trust or control represents a more effective design strategy. Trust-based organizational forms have been praised for fostering organizational performance. On the other hand, compliance and reliability seemingly require controls of employee behavior. Hence, the trust-based and the control-based approach have often been treated in isolation. However, since many of today's corporations face both demands at the same time, from the point of view of organizational design the puzzle is to reconcile the opposing requirements. This question has been pursued in this chapter.

In general, organization design must accommodate the fact that there is also a requisite confidence level or a level of tolerable risk, respectively, with regard to organizational behavior. Control and trust are two concepts for establishing confidence. However, both follow quite different organizing logics and cannot be easily combined or substituted for one another. The analysis has shown that a theoretical separation of the conflicting approaches is difficult to accomplish. An avenue for integration is offered by a primarily configurational theory of organizational design. This framework convincingly differentiates between functional demands and organizational forms. However, it does not clarify the relationship between specific demands and designs. In order to fill this gap, it must be determined which critical behaviors are necessary to achieve the functional demands, to what extent people are likely to behave in the desired way, and which combination of structural forms and flanking mechanisms is most suitable for a balanced realization of critical behaviors and thus the functional demands.

4.1 Informing the theory of organizational design

The thoughts presented in this chapter clearly relate to several theories of organizational design such as contingency/information processing theory, agency theory, and theories of new organizational forms. Theories of organization design are usually concerned with the efficiency of information processing. In addition to the widely recognized uncertainty about task-related behavior I argue that a fundamental problem in designing organizations lies in the uncertainty about task-related behavior of the members of an organization. From this perspective, what most clearly distinguishes different approaches are the distinctive assumptions about employee behavior. Though some assumptions such as bounded rationality might be shared by different views (Eisenhardt, 1989), assumptions about employee motivation clearly diverge. As a result, differing prescriptions are

made that usually focus on either organizational structures (decision making responsibilities and relationships between organizational units) or the optimal design of control systems within the chosen structure. These approaches suffer from being one-sided and, therefore, inappropriate in situations with multiple demands. The analysis in this chapter has shown how a 'modified configurational perspective' might be more suitable for organizations that have to meet different demands such as high performance and compliance simultaneously. Hence, limits of referring to either trust- or agency-based design prescriptions as well as extensions of a configurational view have been demonstrated.

In particular I use the work of Gresov & Drazin (1997) as a starting point. Following these authors, organizations face functional demands which, however, do not determine any particular organizational design. Importantly, an organization may front different challenges at the same time. Therefore, organizations may not easily opt for either trust-oriented forms (in order to enhance performance) or control-oriented forms (to increase compliance) but may have to provide for both demands at once. Moreover, there is not a one-to-one relationship between a certain demand and any particular organizational form. Rather, behavior has to be incorporated as a linking pin between demands and designs. In order to accommodate multiple demands it is necessary to do without strict behavioral assumptions such as opportunism or stewardship. Rather, it has to be clarified, which behaviors are critical for each functional demand, which are the determinants of these (critical) behaviors, and how likely it is, that under given circumstances these behaviors may be expected (informed behavioral assumption). Finally, a combination of structural and flanking design elements can be developed such that the desired behaviors will be facilitated and dysfunctional behaviors will be constrained.

Using different structural and flanking measures might present a meaningful way for achieving several functionalities simultaneously whereas making compromises with regard to one design parameter (e.g., grant autonomy and employ tight external controls at the same time) may result in the undesirable antagonistic interrelationships explained above. A particular advantage of such a balanced organization design is that it will not be extremely one-sided (see also Sundaramurthy & Lewis, 2003). I see a valuable difference in such a view as compared to the view of change that has been advocated by some proponents of the configurational school, suggesting that a once consistent configuration becomes more and more inappropriate for new demands and is hence completely renewed in a 'quantum jump' which results in a new configuration (Miller & Friesen, 1984). Widely neglected shortcomings of this view are that it merely allows for a sequential realization of divergent demands whereas the essential

challenge is to meet different requirements at the same time, and that a one-sided consistency, due to disadvantageous side-effects, breeds instability (see also Gebert (2000) for a comprehensive critique of Tushman & Romanelli's (1985) punctuated equilibrium model).

In the view of the present chapter, a configuration marks any coherent combination of external demands, behaviors, and a set of structure and flanking mechanisms (figure 3.2). Accordingly, misfits may occur within each component (demand, behavior, design) as well as between these components. For example, a behavior misfit would be present if despite evidence of a significant likelihood of dysfunctional behaviors pro-organizational behavior (stewardship) is assumed. An example for a design-misfit is a combination of high decentralization (structure) and leadership behavior (flanking) that constantly intervenes with an employees' task behavior. If the chosen design is not suitable for facilitating the critical behavior (in a given context), a behavior-design-misfit is existent.

Further research will be needed in order to establish critical behaviors for certain functional demands, to specify the determinants of particular critical behaviors, and especially to examine the behavioral effects of combinations of structure and flanking components of organization design.

4.2 Informing the practice of organizational design

The results of this chapter should also be reflected in future practice of designing effective organizations. First, the analysis has shown that it may be dangerous to rely on just one – though coherent – logic of design. The trust-logic has more recently been proposed as a way for improving performance of organizations by way of granting employees more autonomy. On the other hand, companies have begun to implement rather traditional control structures in order to assure compliance with various legal regulations. Whenever both performance and compliance play an equally important role (which should be the usual case in for-profit organizations), reliance on either model will lead to undesirable results. Due to the interdependencies between trust and control, a simple combination of the two approaches will probably not work either.

The practicing manager should start with a situational analysis of the relevant contingencies and the demands that have to be met by the organization. After all, the demands are met by the members of the organization. Therefore, a very important next step is to establish those behaviors that are critical for achieving each functional demand. In turn, the determinants of the critical behaviors have to be clarified. The manager may then ask how likely it is that the members of the organization conduct the critical behaviors or if deviations that are worth mentioning have to be

expected. Thus, the practitioner will gain an informed assumption of the relevant (critical) behavior. It is hence a vital recommendation to refrain from applying broad behavioral assumptions as many theoretical approaches do. Usually, these assumptions are too general for the purpose of designing particular structures and applying them may lead to undesirable side-effects.

Third, the desired behaviors might best be facilitated by a combination of structure-building and structure-flanking design elements. It is imperative to note that there is usually not a one-to-one relationship between a particular functional demand and a certain structure. Rather, depending on the contingent behavioral assumption applied, different combinations of structural and flanking mechanisms may be most appropriate to yield the desired outcome.

Finally, there is evidence that companies often neglect to control the results of reorganizations (v. Werder & Grundei, 2006). However, this seems to be crucial in order to gain feedback about the appropriateness of the chosen design elements and thus to constantly improve the organizational design. Therefore, companies should regularly control for the degree of goal achievement as well as the fit between demands, behavior and design in order to initiate necessary adaptations and to facilitate learning (indicated by the dotted line arrow in figure 3.2).

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Chapter 4

STRUCTURAL LIMITATIONS IN ORGANIZATIONAL DESIGN

The integration-differentiation paradigm

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Abstract: This contribution presents the idea that we need to look at the professional bureaucracy and design mechanical structures with lateral knowledge liaisons when exceptions are generated on a continuous basis. By decreasing the information processing need and replacing autonomy with formalization and centralization, individual knowledge workers assigned to organizational tasks can concentrate on specific tasks and will be released from the information-processing demand for more organic structural designs.

Key words: Organizational Design, Information Processing View, Technology, Environment, Size, Structure, Decentralization

1. INTRODUCTION

Organic and flexible organizational forms have received much attention in the organizational design literature, but a central and important question remains: How flexible can we design organizational structures that still are able to perform satisfactorily? External variation and competition have forced organizations to design structures to be even more flexible and to abandon mechanical, organizational forms of organizational design. However, the limit of flexibility and adaptability has not been addressed, and the solution to viability in environments, characterized by high degrees of uncertainty, might be a reduction of the information-processing need rather than an increase in the information-processing capability. On the basis of contributions by Jay Galbraith (1973, 1974, 1977), this paper will examine the structural limitations of flexible organizational forms and describe

variables affecting the organizational design in environments characterized by non-routine technology and high uncertainty.

For many years, Ashby's law of requisite variety (Ashby, 1956) has guided organizational theorists in postulating that organic, flexible organizational designs are the solution to ever increasing, uncertain environments and non-routine technology situations. As suggested by D'Aveni (1994), the solution to short periods of advantage punctuated by frequent interruptions are to design organizational structures to be even more flexible (Aaker and Mascarenhaus (1984), Weick (1982), Thompson (1967)). However, where most definitions see flexibility as opposed to stability, several authors recognize that flexibility only makes sense combined with stability, see e.g. Weick (1982) and Volberda (1996). The demand for organic and flexible structures of organizational design must therefore include the assumption that elements of stability have to be present.

Flexibility without stability results in chaos, Volberda (1996, p. 360).

Regarded from an information-processing point of view (Arrow (1974), Thompson (1967), Galbraith (1973, 1974, 1977)), the variable creating stability, when designing more flexible, structures has been the processing of information. However, when the information-processing, due to information overload (Bruner, 1957), generates multiple exceptions rather than solving exceptions, the stability-creating variables lack in the information-processing process of more organic organizational forms. This information overload can be seen as communication stress (Meier, 1963):

...whenever an organization fails to complete transactions for which it is responsible as rapidly or as accurately as is felt desirable. (Meier, 1963, p. 522)

Combining the contributions of Burns and Stalker (1961), Galbraith (1973, 1974, 1977), Lawrence (1981), Woodward (1965), Perrow (1967), and Burton and Obel (2004), the following question arises:

RQ1 How can we design organizations to perform satisfactorily in situations with non-routine technology facing high degrees of uncertainty?

2. SOURCES OF STRUCTURAL COMPLEXITY

What the model suggests is, that the structural design of the information-processing capability and the information-processing must originate from a strategic choice of adaptability. This choice of information-processing

structure has to be consistent with the strategic choice in order that the organization can perform satisfactorily, and performance can be seen in the light of the organization's effectiveness and efficiency.

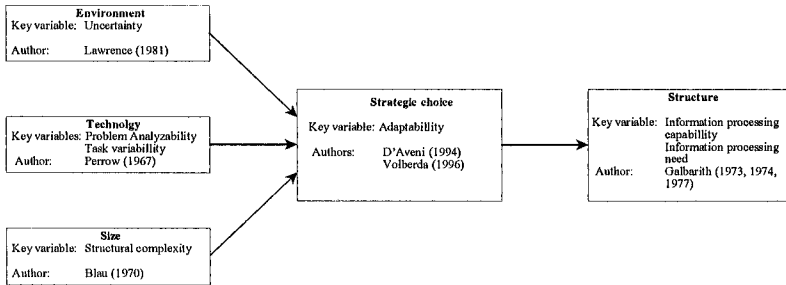


Figure 4-1. Sources of structural complexity

Looking at the choice as a matter of adaptability in periods of strategic advantage punctuated by interruptions, organizations need to focus on strategic flexibility when exposed to high variety environments with high speed, as suggested by Volberda (1996, p. 363). The strategic choice is determined by the environment where the environment has to be viewed in terms of external uncertainty, unpredictability and complexity (Lawrence, 1981). This external uncertainty will result in an internal task uncertainty increasing the need for process information among decision-makers.

The technology must be viewed in terms of problem analyzability and task variability (Perrow, 1967) where non-routine technology is viewed as a technology involving task variability generating exceptions and ill-defined problem analyzability. Non-routine technology, as presented by Perrow (1967), will consequently result in an internal task uncertainty increasing the need for processing information. Finally, the size of the organization will affect its structural complexity (Blau, 1970) as more complex structures are necessary to satisfy large organizations' greater information processing needs.

With regard to the design of organizations from an information-processing view, Simon (1973, p. 269-270) describes the challenge as follows:

The central problem is not how to organize to produce efficiently (although this will always remain an important consideration), but how to organize to make decisions – that is, to process information.

When decision-making becomes central and firms are forced to make decisions more frequently because of external pressure, Huber (2004, p. 80) suggests two options:

1. Increase the number of decision units to match the increased decision load.
2. Increase the efficiency of the decision-making process.

Where the first option of designing decision units (Huber and McDaniel, 1986) is related to a more flexible, effective and organic organization, the second option is a matter of organizing more efficiently and mechanically in order to prevent organizational stress, as described by Meier (1963). This dual and paradoxical structural design will result in either a need to increase the capacity of processing information or a need to reduce the necessity of information processing (Galbraith, 1973, 1974, 1977), Table 1 presents the structural design recommendation of the model.

Where environment and technology generally call for a more organic structural design when becoming more complex and uncertain (as to the demand for an increase in the capacity for processing information), the size relates to the necessity of reducing the information processing. Large organizations hence tend to be more formalized and mechanical than smaller ones, and the three forms of structural complexity presented in the model therefore generate two different demands in the information-processing structure. Large organizations with high structural complexity, non-routine technology and highly uncertain environments must consequently be both mechanical and organic at the same time.

Furthermore, uncertainty is not only a matter of external uncertainty (technological change, uncertainty of the environment) but also a matter of internal uncertainty (structural complexity e.g. affects the task uncertainty internally and increases the information-processing demand). Following Galbraith's definition of uncertainty, "the greater the task uncertainty, the greater the amount of information that must be processed among decision-makers during the task execution in order to achieve a given level of performance" (Galbraith, 1974, p. 28), the task uncertainty is not only an exogenous, determined variable. By designing organic structures, the structural complexity includes the idea that task uncertainty increases as formalization decreases. As seen in figure 4.2, the relationship can be described as an integration demand resulting from a task differentiation, where the integration is determined by the task dependency.

The uncertainty dimension can also be extended to include perceived uncertainty as suggested by e.g. Tung (1979) and Buchko (1994), where uncertainty is seen as "an individual's perceived inability to predict (an organization's environment) accurately" because of a "lack...of information" or "an inability to discriminate between relevant and irrelevant

data” (Buchko, 1994, p. 411). This dimension of perceived uncertainty will further affect the formal design. The creation of more organic organizational form includes that the perceived task uncertainty potentially increases, resulting in the necessity of integrating and processing information among decision-makers.

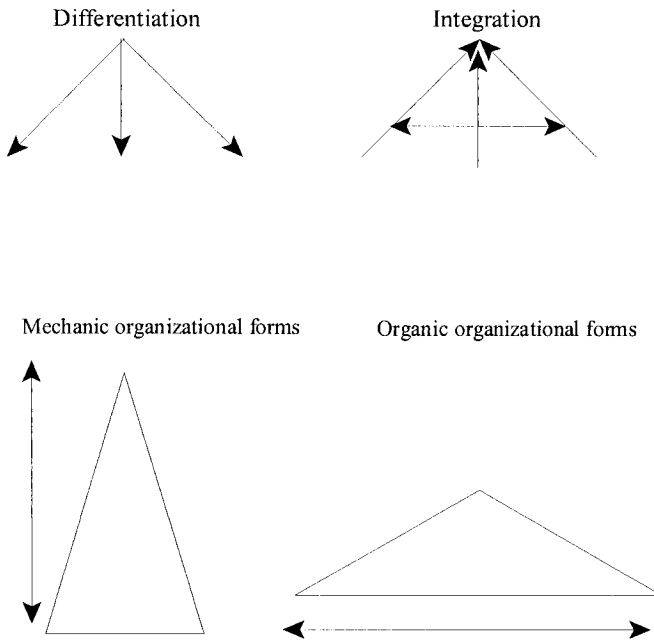


Figure 4-2. Differentiation/integration and structural forms

When looking at the differentiation-integration paradigm in an organizational design perspective, Galbraith (1973, 1974, 1977) argues that the creation of self-contained tasks will reduce the need for information processing. Galbraith (1974, p. 31) suggests that this reduction can be e.g. a change from a functional organization into a product group, and this reduction of the need for processing information can therefore be seen as a configurational design response to structural complexity. This reduction in the need for information processing can be achieved by various structural diversification designs creating small independent subunits. Hence, as noted by Thompson (1967), technology can also be seen in terms of divisibility where technology can be measured as pooled, sequential or reciprocal (Thompson, 1967, pp. 54-55). The interdependence between technology and size therefore includes that the design of small subunits is dependent on the

applied technology and the degree of differentiation and integration possible, according to the technological dimension. Combining the horizontal focus of the organic structure and the vertical focus of the mechanical structure with Galbraith's design strategies (Galbraith, 1974, p. 30), the technology-size relationship must account for the fact that the way in which organic structures can be designed is limited. The argument for reducing the required information processing can therefore be adduced in terms of both structural complexity and the task interdependency of technological dimension.

However, by including the dimensions of efficiency and effectiveness as measurement of performance, the relationship between the structural form and performance includes that the dimension of being effective (Burton and Obel, 2004) can be seen as a matter of flexibility (Lant and Mezias, 1992) and focusing on exploration (March, 1991). This dimension creates a demand for a more organic organizational structure, but as noted by March (1991) the exploration of new alternatives reduces the speed at which skills at the existing ones are improved. As further described by Levitt and March (1988), improvements on competence in existing procedures make experimentation with others less attractive. The dimension of exploitation can therefore be seen as internal efficiency, creating a demand for a more mechanical organizational structure. This duality also includes that most organizations must balance between exploring and exploiting (March, 1991), which again means that there must be a balance between the organic and mechanical elements of the organizational design seen in an organizational change perspective.

The relationship between the organizational design and the sources of structural complexity will generally indicate that uncertain environments and non-routine technology advocate more organic structures. However, forces also exist affecting the design towards a more mechanical one. When reviewing environment and technology as sources of structural complexity and combining them, a more comprehensive interpretation of this duality emerges.

3. ENVIRONMENT AS A CONTINGENCY

With regard to the environment as being the task environment (Dill, 1958), uncertainty as described by Lawrence (1981) can be seen as unpredictability and complexity, where unpredictability is considered as instability and ignorance of data and cause/effects (Lawrence, 1981). The variable of uncertainty is related to not knowing the variable (Burton and Obel, 2004), which, according to Lawrence (1981), is a matter of the number of variables and the interdependence of variables which, according to

Lawrence (1981), is a matter of environmental complexity. The uncertainty of the environment therefore includes a competitive and adaptive aspect in terms of the unpredictability of the environment leading to an argument of designing organizations more organically. This tendency has been identified by e.g. Burns and Stalker (1961) and Lawrence and Lorsch (1961) who established that the more rapidly the firms' technological and market environments are changing, the more flexible or organic their structures will tend to be.

In terms of environmental complexity, the uncertainty dimension is a matter of processing the amount of information required to complete the task, which relates directly to the Galbraith model of organizational design strategies (Galbraith, 1973, 1974, 1977), where uncertainty is seen as the need for information to be acquired and processed. Following the Galbraith model of organizational design strategies (1973, 1974, 1977), the complexity dimension of uncertainty includes not only tendencies to becoming more flexible, e.g. more organic, by reducing the need for information processing through the creation of self-contained tasks or increasing the capacity to process information by creating lateral relations. The complexity dimension of uncertainty also includes tendencies to becoming more mechanical through e.g. formalizing the decision-making language. This could be accomplished by increasing the capacity to process information by investing in vertical information systems (Galbraith, 1973, 1974, 1977). The argument for formalizing the information structure originates in the idea that "the more formal the information system, the fewer the resources consumed in transmission" (Galbraith, 1977, p. 99), which supports the idea that the formalized information processing structure of more mechanical designs can handle more information than organic structures can. The capacity to process information therefore includes a view of the volume, and "information size" is therefore related to e.g. the aspects of absorptive capacity (Cohen and Levinthal, 1990), where prior knowledge has to be available in order to recognize, assimilate and apply new information. Where the differentiation permits specialization (flexibility) in regard to the task environment, the differentiation (through the integration) also contributes to rationalization and routinization in order to increase certainty (efficiency, as noted by Scott (2003, p. 147). This process of routinization can be seen as the process of converting explorative search into exploitative knowledge. The process of converting specialized knowledge into integrated organizational knowledge implies that stability (routines) results in processing uncertain information that needs to be acquired.

However, as mentioned by Grant (1996) and Huber (2004), the integration of specialist knowledge with already integrated organizational knowledge depends on the fact that the organizational design facilitates this

knowledge integration. Grant (1996) identifies three characteristics associated with the organizational ability to integrate knowledge:

1. The efficiency of integration
2. The scope of integration
3. The flexibility of integration

Where the efficiency relates to the ability to access and utilize specialist knowledge held by individuals. The scope relates to the breadth of specialized knowledge that the organization draws upon, and the flexibility relates to the accessibility to additional knowledge and the ability to reconfigure existing knowledge. The challenge of future knowledge integration is further described by Huber (2004):

Individuals in the future will know a smaller proportion of all that is known (Huber, 2004. p. 181)

On the one hand, organizations need to design in order to enhance the depth of the organizational knowledge base which necessitates more organic structures of the organizational design. On the other hand, organizations need to design in order to enhance the thoroughness of the organizational knowledge base in order to be efficient and prevent organizational stress, which again necessitates more mechanical structures of organizational design.

The environmental uncertainty therefore includes two dimensions pulling the organizational structure in different directions. Where unpredictability relates to the dimension of being effective and exploratory, the variable of complexity relates to the design of the information processing structure. Therefore it also relates to efficient information processing in terms of utilization of internal resources and to the criteria of stability and exploitation. The environment as a source of structural complexity pulls the organization not only towards a more organic structure, but also towards more mechanical structures when generating exceptions as a consequence of environmental complexity. This duality between change and preservation is described by Volberda (1996) supposing that the managerial task is to provide flexibility and change, whereas the organization design task is to configure for preservation and control. Regarding the environment as a contingency, external flexibility is due to internal stability. With regard to the flexibility of the organizational design, there must be a limit as to how organically we can design organizations that still fulfill the criteria for being effective and efficient.

4. TECHNOLOGY AS A CONTINGENCY

With regard to technology characterized as problem analyzability and task variability (Perrow, 1967), technology as a contingency can be viewed in terms of complexity, uncertainty and interdependence (Scott, 2003, p. 233), where the task information requirements (information processing demand) can be seen as a multiplying effect rather than a cumulative effect. In regard to technology as a contingency, both the complexity, the uncertainty and the interdependence create a demand for more organic structures (Scott, 2003, p. 233):

The greater the technical complexity, the greater the structural complexity. The structural response to technical diversity is organizational differentiation.

The greater the technical uncertainty, the less the formalization and the centralization

However, as also noted by Scott (2003, p. 233):

The greater the technical interdependence, the more resources must be devoted to coordination.

Where the complexity and the uncertainty pull the organizational form towards more organic structures, the interdependence of the technology forces coordination, and hence integration, which includes that the Perrow technology dimension (Perrow, 1967) has to be combined with e.g. the Thompson analysis of divisibility (Thompson, 1967, pp. 54-55). The task coordination demand for technology therefore includes information processing among decision-makers during the execution of the task as argued by Galbraith (1973, 1974, 1977). Furthermore, this dimension is important when returning to the size-technology dimension. For this reason, non-divisible technology in large organizations must include mechanisms in order to integrate the technology. Where the technical uncertainty and complexity force the organization to differentiate and design structures in more organic organizational forms, the interdependence of the technology forces the organization to design mechanical organizational decision-making systems in order to integrate task solutions. Mechanical instruments such as routines, guidelines, procedures, rules, etc. therefore guide and preserve the ability to be flexible and exploratory. Therefore the absorptive capacity of the organization in terms of absorbing technological uncertainty and complexity must be related to the formalization of the organizational knowledge base.

With regard to technology as a contingency, the flexibility and more organic process of exploring new alternatives follow from more standardized procedures of knowledge preservation and knowledge integration through transparency-creating systems.

5. THE STRUCTURAL LIMITATION OF FLEXIBILITY

When looking at the sources of structural complexity in Figure 4.1, the three variables not only affect the structural design by designing the structure more organically or more mechanically. Differentiation interrelates with integration to a dependency that forces stability from flexibility. This relationship can be seen when looking at the development of structural configurations from a time perspective, where the need to develop more organic, organizational forms also have resulted in a need to integrate and process more information.

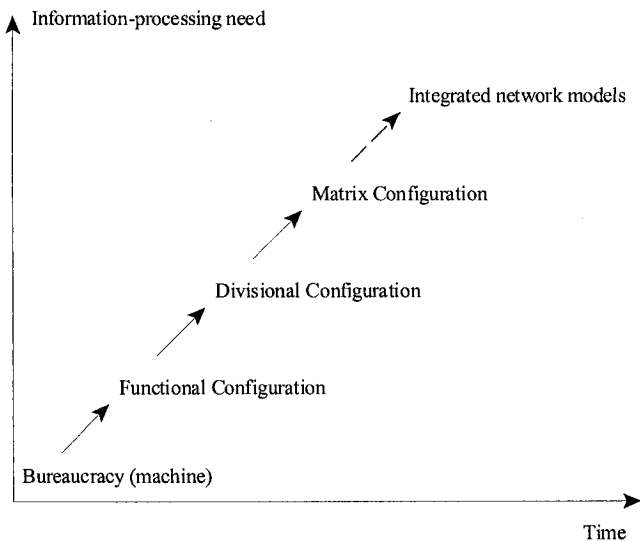


Figure 4-3. Structural configurations seen from a time perspective I

As seen in Figure 4.3, the development of structural configurations can be seen in a time perspective as a demand for flexibility/stability related to information cost. Where the machine bureaucracy and the functional

configuration were efficient in terms of utilizing formalization and specialization with clear hierarchical relationships, the lack of flexibility and lack of responsibility for the end product created a demand for more flexible configurations after World War II. Following Chandler's (1962) proposition for structure and strategy, the requirement of focusing on the end product and creating profit centers through decentralization was enabled by means of the structural configuration of the division. However, where the divisional configuration proved to be effective, possible efficiency lacks existed as a consequence of splitting the organization into divisions. The possibility of duplicating products and/or creating integrative problems between divisions forced the development towards a structural configuration including both specialization and flexibility. This was done by introducing the dual-hierarchy of the matrix configuration. Where the information-processing demand increased from the functional to the divisional configuration, coordination became even more important with the matrix configuration. Shifting from hierarchies to heterarchies, as suggested by Hedlund (1994), and designing the organization even more organically have further increased the information-processing capability, but at the same time also increased the internal information-processing demand and thereby the structural complexity. Where new organizational forms are emerging, such as internal market organizations (Halal, 1994) and dynamic networks (Snow, Miles and Coleman, 1992), the limit of flexibility needs to be addressed. When looking at environment, technology and size as contingencies, each variable does not only pull the design towards more organic structures, it also necessitates the presence of stability and mechanical mechanisms so that the organic flexibility can be beneficial. It is a fact that N-form structures are flexible, but how flexible can we design structures that are both effective and efficient and at which cost?

6. OLD WINE, NEW BOTTLE?

Instead of designing even more organic organizational configurations, it might be more appropriate to look at classic organizational designs that reduce the need to process information. In order to perform satisfactorily, it is not sufficient only to focus on the flexibility of N-form configurations; we also need to focus on preserving knowledge in rules, programs and procedures. On the one hand, we need organizational configurations that are flexible and can explore new alternatives. At the same time, however, we need organizational configurations that preserve knowledge over time. When looking at the sources of structural complexity of large organizations in uncertain environments with reciprocal technological interdependence, we

have to find organizational organic configurations that are able to reduce uncertainty through information processing. Yet, such an organizational configuration would need an organizational core of consistency, rules and regulations to preserve the organizational memory. In terms of complexity, such a system is described by Pondy and Mitroff (1979) applying Boulding's Hierarchy of Complexity as a "Multi-cephalous system" where the organization is denoted as "a system with several brains, "a social organization", a collection of individuals acting in concert. What distinguishes such a system from lower levels of structural complexity is the fact that elaborated, shared systems of meaning exist, e.g. a system of law (Pondy and Mitroff, 1979, p. 9). This mechanism was discovered by Thompson who called it "the synthetic organization" (Thompson, 1967, p. 52), i.e., where ad hoc organizations emerge, e.g. to overcome large-scale natural disasters in communities. According to Thompson the characteristic of "the synthetic organization" is that "a headquarter is established based, not on authority in any formal sense but upon scarce capacity to coordinate"...authority to coordinate the use of resources is attributed to – forced upon – the individual or group which by happenstance is at the crossroad of the two kinds of necessary information, resource ability and need" (Thompson, 1967, p. 52). Further, Thompson (1967, p. 53) argues, that "the synthetic organization" distinguishes from lower level complexity organizations in the sense that there are:

Consensus among participants about the state of affairs to be achieved.

Great freedom to acquire and deploy resources, since the normal institutions of authority, property, and contract are not operating.

What Thompson (1967) describes as "synthetic organizations" are knowledge bureaucracies, where each individual or group of individuals is empowered and works at a high degree of autonomy. In order for the "synthetic organization" to work, a headquarter need to be established for the purpose of coordinating efforts and allocating resources. This separation of administrative and operating work was also identified by Mintzberg (1981) as "the administrative adhocracy", where a two-part structure would secure both the effectiveness of project work as well as the efficiency of production. As described by Minzberg (1981, p. 112):

The administrative component carries out the innovative design work, combining line managers and staff experts in project teams. And the operating component, which puts the result into production, is separated or "truncated" so that its need for standardization will not interfere with the project work.

Coping with extreme uncertainty is not a matter of creating an organic system of flexibility, but rather a matter of creating a mechanical system that can handle organic processes effectively (effectiveness as a timing criterion). Choosing a simple plan at the right time is better than choosing to discuss which plan to follow. The competitive advantage of the “synthetic organization” consequently depends on the development and deployment of decision-making resources rather than managerial and physical assets, which is similar to Quinn’s description of “the intelligent enterprise” (Quinn, 1992).

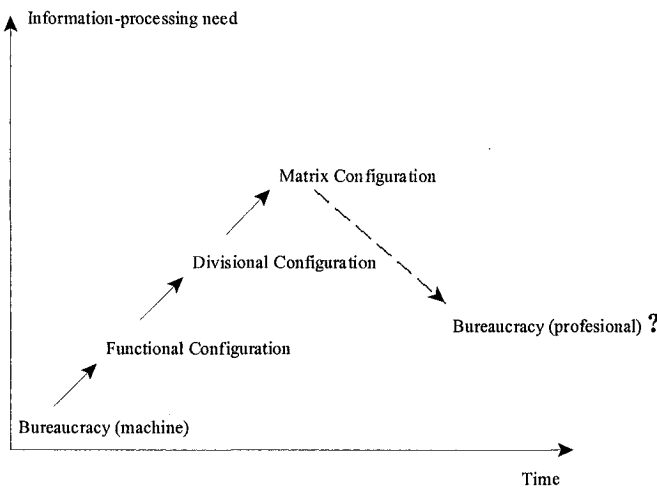


Figure 4-4. Structural configurations seen in a time perspective II

In highly uncertain environments with non-routine technology, the stability and consistency would be secured by an organizational core “headquarter”, functioning as a bureaucracy with a cellular organization built around the core as suggested by Allred, Snow and Miles (1996). Whether to label the configuration “cellular organization” or “professional bureaucracy” would be a matter of standardization of the language. However, considering professional bureaucracies such as medical clinics, universities, consultancy firms, the advantage of the professional bureaucracy is both the capability to integrate new knowledge and, by means of rules and routines, to benefit from the organizational memory and individual knowledge. Specialists operating as cells in a professional community will not operate as an organic task structure, but rather in a mechanical, rule-based system (coordinated with a headquarter). Therefore,

the conclusion is that we should look at the professional bureaucracy and design mechanical structures with lateral knowledge liaisons that are operable when exceptions are generated on a continuous basis (like crises of natural disasters). By reducing the information processing need and replacing autonomy with formalization and centralization, individual knowledge workers assigned to organizational tasks can concentrate on more specific tasks and thus be excluded from the information-processing demand for more organic structural designs.

7. DISCUSSION AND CONCLUSION

With regard to the question of “how to design organizations with non-routine technology facing high degrees of uncertainty to perform satisfactorily?”, the basic idea of this contribution is: in that the information processing need is reduced by returning to the mechanical structure of the bureaucracy, organizations are able to handle the limitations (information-processing costs) of more organic organizational forms. As seen in Figure 4.4, the future response to high levels of uncertainty may not be the design of even more organic organizations (by increasing the information-processing need), but rather the design flexible organizations with more mechanical components with the purpose of creating stability in the variety. Consequently, the proposition of this paper is that the Ashby law (1956) will have to be revised in the organizational design literature into “only variety (with some stability) can destroy variety”. This also requires that future inventors of models of organizational design must look at traditional mechanical structures and try to develop new ones with timing as the main criterion. Knowledge accessibility therefore becomes the main determinant of how to solve exceptions. Time as a criterion is not only a matter of solving tasks when needed, but also a matter of adaptability and resource availability.

7.1 Informing the theory of organization design

By reducing the information processing need of organizations and returning to the mechanical structure of bureaucracy, organizations are able to handle the information-processing costs of more organic organizational forms. Instead of focusing and developing organic and flexible organizational designs, future response to external uncertainty should be based on formalizing and centralizing decision-making rather than decentralizing it. The challenges in organizational design theory lie in developing network-based designs, where the operating component of the

design is standardized so that project teams are excluded for administrative information-processing, decreasing the probability of organizational stress. It is not the main issue whether to label the design “intelligent enterprise” (Quinn, 1992), “synthetic organization” (Thompson, 1967), “dynamic networks” (Snow, Miles and Coleman, 1992), or merely “professional bureaucracy”. The main task for the organizational design field lies in developing mechanical organizational designs with organic adaptive capacity in order to explore effectively in project teams as well as exploit efficiently in the operating component of the organization.

7.2 Informing the practice of organization design

The only certain factor in the global economic environment today is uncertainty. As a consequence of the interaction with the environment, organizations need to reduce uncertainty and organize to create clarity. Where the traditional argument for practice has been to design more flexible organizations in order to increase the information-processing capability of the design, it is argued in this chapter that there is a limit as to how flexible we can design organizations. In future environments, practitioners need to incorporate mechanical elements in the design in order to prevent organizational stress by reducing the information processing demand. So, the Ashby law (1956) of requisite variety is reformulated into “only variation (with some stability) can destroy variety”, and the main argument of the chapter is that formalization and standardization of the operating component of the organization permit flexibility in project teams. When looking at professional bureaucracies such as medical clinics, universities, consultancy firms etc., the advantage of the professional bureaucracy is both the capability to integrate new knowledge and at the same time, by means of rules and routines, to benefit from the organizational memory and individual knowledge. Specialists operating as cells in a professional community will not operate as an organic task structure but in a mechanical rule-based system. Future organizational designs will have to focus on the mechanical elements of the design in order to be able to adapt and integrate new knowledge.

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Chapter 5

THE MANY FACES OF FIT

An application to strategic human resource management

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Abstract: This chapter delimits and discusses design considerations within the field of Strategic Human Resource Management (SHRM). The relationship between human resource management (HRM) systems and strategy types is investigated and predictions are made about a simultaneous horizontal and vertical fit. In a conceptual model for SHRM the key argument is that the fit between business strategy and HRM strategy is determined by task characteristics of the strategy type and internally consistent HRM practices, i.e. a matching hypothesis.

Key words: Strategic human resource management, strategy, vertical fit, horizontal fit, internal fit, external fit.

1. INTRODUCTION

Human resource scholars as well as practitioners agree upon the strategic importance of organizations' human resources (HR). During the last 10-15 years a growing number of sources have claimed that the human resources are the organizations' most important assets, and that management of these resources will increasingly contribute to the continuous competitive advantage of organizations (e.g., Lado & Wilson, 1994; Pfeffer, 1994; Ulrich (ed.), 1998). Thus, there is a growing demand and concern for human resource management (HRM) to prove its utility in improving organizational efficiency and effectiveness – and it is in this light that HR departments are to play a more strategic role. HR departments have the opportunity to demonstrate their importance in the pursuit of organization level performance and change. If HR departments are not adding value to

organizational performance, they may be viewed merely as cost functions with the risk of being minimized or outsourced.

If an HR department is to contribute to performance improvement in an organization it requires that its efforts are well organized, and the various aspects of the organizational system must be aligned. HR practices are mutually dependent and should fit with the business strategy, and with the overall design of the organization (Mohrman & Lawler, 1999). Bearing this in mind, this chapter has two overall propositions. The first proposition concerns the relationships between HRM practices. This proposition is based on the assumption that deviations from an ideal type of HRM system are likely to result in decreased efficiency as individual HRM practices might work against each other, i.e. the level of horizontal fit. The second proposition concerns the relationship between the configuration of HRM systems and organizational choice of business strategy, i.e. the level of vertical fit. Here the baseline assumption is that if the configuration of an HRM system is not properly matched to the business strategy, it is likely to result in lower effectiveness.

How HR can contribute to the performance of the organization has been described thoroughly since the mid-1980s (see Paauwe (2004) for an overview). Especially during the last years, HRM has had the opportunity to prove that it can contribute to organizational success through the development of a more strategic role, i.e. delivery of efficient services and the facilitation of organizational change. This development is based on a growing demand (and concern for) the continuous improvement of organizational effectiveness and profitability. Currently HR seems to be able to provide a large variety of solutions to some of the dominant questions being posed in organizations. However, in answering the how-question a multiplicity of approaches emerge.

2. HR LITERATURE

The HR literature flourishes with frameworks and approaches for identification and categorization of HRM systems, i.e. relationships between HRM practices and performance. Some authors (Pfeffer, 1994) suggest that successful HR systems have rather *universalistic* characteristics, i.e. there is a “best HRM practice”. Others, like Milgrom and Roberts (1995), claim that the *internal consistency* of HR systems matters for their design, i.e. it is possible to detect successful combinations (or bundles) of HR practices. Yet others (e.g., Ostoff & Bowen, 2000) suggest that an HR system should be *contingent* on contextual factors. Finally, Colarelli (2003) argued for an *evolutionary* perspective on HRM. Based on a psychological and socio-

cultural framework, HRM actors and activities are viewed as elements in complex ecosystems and economies. These substantively different approaches to HRM have resulted in a large variation in foci, conceptual understandings, definitions, and have lead to a rather elaborate methodological and thematic relativism within the field. Consequently, testable models – based on more integrative approaches – are few.

Miles et al.'s (1978) suggestion of three main approaches to management (i.e., the traditional, human relations, and human resources models) provided the initial discussion of how strategy types and HRM approaches may be connected. The notion of “strategic HRM” first appeared at the University of Michigan as a more coherent approach (Tichy et al., 1982) and was developed further by Beer et al. (1984) at Harvard University. While the former emphasized a strategy-driven fit, the latter stressed a broader variety of contingency factors. Early works from the mid-1980s still dominate the discussion of strategic HR. The discussion has centered on three overarching themes: 1) Comprehensive as opposed to patchwork direction of the human function in organizations. 2) Link between operational HRM issues to organizational strategy and structure. 3) Investment philosophy regarding expenditures on labor and worker-embodied knowledge – an investment as opposed to an expense (Jacques, 1999; Watson, 2003)

Despite the large bulk of literature on HRM produced since the mid-1980s, there is little solid evidence about the ways in which various types of HRM strategies are shaped in practice. The core concepts mentioned above – *comprehensiveness*, *link*, and *investment philosophy* – have not materialized in the empirical literature on strategic HRM (SHRM). There is a need for conceptual clarification concerning strategic HRM. It is seldom consistently defined or derived but is described by a large variety of partially overlapping concepts, e.g. HR systems, philosophies, policies, programs, practices, and – not least – processes (Schuler, 1998). Becker and Gerhart (1996) and Becker and Huselid (1998) argued that in the late 1980's, it was important for the SHRM literature to progress empirically as well as theoretically. As we see it, there is still a demand for more design based systematic approaches to the strategic choice of the HR departments. Prior empirical work has emphasized methodological issues over conceptual work. We therefore find it relevant to look into the conceptual challenges prior to conducting further empirical research.

We suggest that more consistent HR practices (i.e., a higher degree of horizontal fit) would lead to more *efficient* organizations (Delery & Doty, 1996), and that *effectiveness* depends on whether organizations have aligned their HRM practices (Baron & Kreps, 1999) with their choices of strategy, i.e. whether there is a vertical fit (Fombrun et al., 1984; Delery & Doty, 1996). Only few studies have focused on the demand for simultaneous

horizontal and vertical fit, and only to a limited extent studies have provided more coherent design suggestions for the HR strategy. For example, Lepak and Snell (1999) have introduced the concept of HR architecture, and Baron and Kreps (1999) have developed the HR blueprints. Both can be seen as theoretically and empirically driven design suggestions of HR strategies which build on vertical considerations.

3. LEVEL OF ANALYSIS

Much of the prior research within the field of HRM gives rise to methodological discussions. One of the major critical issues is related to the appropriate level of analysis. A strategic influence of HRM systems implies an organizational level analysis involving an inimitable alignment between the HRM system and the demands for strategy implementation. Traditionally HRM research has gathered data from individuals, often within a single organization, and examined relationships between individual-level performance, behavior, and attitudes in organizations. On the basis of these individual-level results, organizational level inferences concerning organizational performance effects have been offered.

In addressing the question of how individual differences translate into organizational effectiveness, we suggest a multi-level approach (i.e., a simultaneous study of organization, group, and individual level processes), and a delineation of the processes by which the levels are related in the form of linking mechanisms. Since HRM practices shape the skills, attitudes, and behaviors of the workforce of an organization, and, in turn, these influence organizational performance, both the micro- and the macro-level variables are needed for a theoretical explanation of the relationship between HRM practices and organizational performance. HR practices are assumed to have a direct impact on organizational performance by creating structural and operational efficiencies. Furthermore, we argue that the system of HR practices must be mutually aligned and aligned with key organizational contextual variables, such as business strategy. We adopt a multidimensional view whereby there are multiple configurations of HR practices that must be aligned with organizational context to influence organizational performance (Ostoff & Bowen, 2000).

A critical methodological issue is the notion of fit. There has been a substantial amount of research in separate HRM practices such as pay (e.g., Gerhart et al., 1996) or teams (e.g., Banker et al., 1996) and the link to strategic outcomes (i.e., organizational performance). These studies lack the holistic perspective of the link between an overall HRM system and the strategic outcomes. Conceptual work suggests that test for complementarities

and fit should be both internal (i.e., among HRM practices) and external (i.e., with other organizational policies and goals). See e.g. Milgrom & Roberts (1995). Support has mainly been found regarding the internal fit hypothesis (Becker & Huselid, 1998). Measurement of external fit is therefore a challenge for the SHRM field.

Finally, the current state-of-the-art of SHRM research seems to have a rather vague idea of the substance of strategy, manifested in a lack of explicit theory beyond the almost tautological assertion that HR is the most important asset (Lado & Wilson, 1994). In the resource-based view of the organization (e.g., Peteraf, 1993; Wernerfelt, 1984) there are many different ways of exploiting a organization's resources tied to – among other things – the bargaining process between resource users and providers, the extent that resources can be substituted, imitated, or internally replicated and transferred. Since organizations can chose many strategies for enhancing or creating rents based on the specifics of their situation, the resource-based literature implies that a contingent view on the fit between SHRM and strategy is appropriate. This seems to in conflict with the current practice in SHRM which favors a universalistic notion of the fit between strategy and SHRM. We suggest that a fit between a bundle of HRM practices and the business strategy is needed and hereby we imply that there are ideal types of HRM systems that fit with ideal types of strategies. Therefore, in this chapter it is argued that there is a contribution to be made by linking SHRM to an explicit strategy theory and by providing a better model of fit.

4. BUNDLES OF HRM PRACTICES

One of the first major attempts to develop a comprehensive organizational-wide measure of an HRM system was made by Delaney et al. (1989) followed by Huselid and Becker (1995, 1996, 1997). In accordance with Becker and Huselid (1998), we understand the HRM system as a system that is internally consistent and coherent, and moreover, focused on solving operational problems and implementing an overall competitive strategy. A review of the literature reveals many different methods for measuring and valuating HRM. The absence of a widely accepted measure of a “progressive” or “high performance” HRM practices construct makes it difficult to compare findings across studies (for examples of different approaches, see e.g. Appelbaum & Batt, 1994; Cutcher-Gershenfeld, 1991; Huselid, 1995; Ichniowski et al., 1994; MacDuffy, 1995). In the literature there is broad consensus that HRM systems include rigorous recruitment and selection procedures, performance-contingent incentive compensation systems, management development and training activities linked to the needs

of business, and significant commitment to employee involvement (e.g., Arthur, 1994; Huselid, 1995; Ichniowski et al., 1994; Jackson & Schuler, 1995; MacDuffy, 1995; Milgrom & Roberts, 1995; Pfeffer, 1994). This suggests that it is theoretically appropriate to focus on a comprehensive measure of the HRM system (Becker & Huselid, 1998).

The SHRM literature is characterized by a unitary index containing a set (though not always the same set) of theoretically appropriate HRM practices derived from prior work (Arthur, 1992; Ichniowski et al., 1997, Lawler et al., 1995, MacDuffy, 1995; Youndt et al., 1996). The notion of alignment and fit are also common themes in the conceptual literature (e.g., Butler et al., 1991; Cappelli & Singh, 1992; Jackson & Schuler, 1995; Milgrom & Roberts, 1995; Ulrich & Lake, 1990; Wright & MacMahan, 1992). The focus on alignment necessarily calls upon the possibilities of complementarities or synergies within an appropriately aligned system. These complementarities can be positive, i.e. “the whole is greater than the sum of the parts”. However, it can also be negative, i.e. elements of the system conflicts internally (i.e., among HR practices) and/or externally (i.e., with other organizational policies and goals). Hereby destroying value rather than create value (Becker & Huselid, 1998).

Huselid and Becker have done a substantial amount of research on developing a comprehensive firm-wide measure of organizations’ HRM systems. They found that a high performance HRM system (i.e., *High-Performance Work System*) has a positive effect on organizational performance (i.e., maximization of the overall quality of human capital throughout the organization (Becker et al., 2001)). A high performance HRM system implies designing and implementing a validated competency model which is linked to every element in the HR system. Thus, their research supports the importance of both internal and external complementarities.

Reviewing their past research on HRM systems, Becker and Huselid (1998) and Becker et al. (2001) presented typologies of four HR architectures. The four HR architectures are based on a cluster analysis comparing forty characteristics describing the structure of the overall HRM strategy. Twenty-four of the characteristics characterized the *HRM System* (selection, appraisal, development, compensation, communication, etc.). The remaining characteristics (*Implementation Alignment*) focused on other distinctiveness that would be expected to facilitate the implementation of a High-Performance Work System. The four architectures embraced the ability of HRM professionals to effectively manage different element of the HR system, the alignment between the HRM system and the larger business strategy, the clarity and communication of the overall mission, and the leadership style of senior management.

Although there often seems to be consensus about the specific HRM practices in the literature as regards the substantive level (i.e., not the measurement level), the notion that there are a limited number of internally consistent HRM systems is purely inductive and primarily based on cluster analyses. For philosophical reasons, we suggest that this is problematic since the philosophical ideal is one of falsification. The empirical studies typically employ cluster analyses or explorative factor analyses (and often both in combination). Neither technique can be used to test formally derived hypotheses, but may be useful for pure description. Based on our literature study of SHRM we have identified eight dimensions of SHRM which are listed in Table 5.1. The dimensions are largely based on empirical contributions. Here it should be noted that the tradition for scale development in (S)HRM appears to favor a focus on the substantive issues rather than measurement issues. Research practice does not seem to use *formally validated scales*, and different measures often refer to the same underlying constructs.

Recruitment and selection refer to the emphasis an organization places on the recruiting and screening of potential employees. When an organization devotes many resources to recruiting and selection (controlled for size of course), it is likely that it will run fewer risks of selecting poor performers.

Training refers to the amount of training offered to employees at different organizational levels. A high emphasis on training will result in better skilled and potentially more motivated employees, while less training only results in employees' learning-by-doing.

The degree of *formalization* refers to the formal HR systems that organizations implement, for example salary and hiring policies, and delegation of decision making. A high degree of formalization will entail less flexibility.

Compensation refers to the use of incentive pay by organizations, and the extent to which it is used at different organizational levels. Incentive pay means that employees are rewarded based on their results, for example through bonuses, stock options, piece rates, and similar mechanisms.

Alignment between HR system and business strategy refers to the extent that HR practices are aimed at influencing strategy level outcomes. If this is the case, the goal of HR practices is to affect outcomes by planning, analysis, and influence activities.

Communication refers to the extent to which HR issues are communicated and discussed throughout the organization, and implies that the organization focuses on the traditional human relations perspective on industrial relations that emphasizes participation in decision making and extensive communication within the organization.

Management skills of HR professionals refer to the extent of professionalism and proactiveness in HR professionals. This means that the HR professionals are externally focused, knowledgeable in their field, and engaged in influence activities and active cooperation with other organizational functions.

Table 5-1. Elements of HR architecture

Dimensions	Definitions
HR System	
Recruitment & selection	The resources an organization devotes to recruiting and screening potential employees
Training	The resources an organization devotes to training employees at different levels
Degree of formalization	The extent to which HR practices are formalized, i.e. the use of procedures, rules etc.
Compensation	The extent that incentive compensation is employed in the organization
Effectiveness & Alignment	
Alignment between HR system and firm strategy	The extent that HR practices are aligned with strategy level outcomes
Communication	The extent that HR issues are communicated and discussed throughout the organization
Management skills of HR professionals	The extent of professionalism and proactiveness in HR professionals
Executive leadership style	The leaders' emphasis on stability-flexibility and internal-external orientation

* Primary sources: Quinn, 1984, 1988; Delaney & Huselid, 1996; Huselid et al., 1997; Godard & Delaney, 2000.

Executive leadership style is a fuzzy concept, and the interpretation provided in for example Becker et al. (2001) tends to favor a uni-dimensional perspective on leadership. We offer an alternative perspective based on Quinn's competing values model (1984, 1988). In this model, leadership roles are defined in two dimensions: stability-flexibility and internal-external orientation. The model has met reasonable empirical support both in terms of leadership and on the organizational level. Therefore, we believe that Quinn's model is a more refined way of describing leadership in organizations.

The weakness of the HR architecture profiles are that they are inductively generated, and although they have some predictive validity, since they predict performance, their theoretical basis remains limited. In the following section, we attempt to provide ideal HRM architectures that fit with the task

environment of the Miles and Snow's (1978) strategy types. We suggest that describing HRM systems in terms of their organic vs. mechanistic properties is a useful way of developing ideal types of HRM systems.

5. ORGANIZATIONAL STRATEGY

The core of most strategy research assumes that improved performance results from alignment of the strategy with the opportunities and threats found in the competitive environment (Andrews, 1971). However, what is meant by alignment or fit remains fairly vague in the strategy literature (Venkatraman, 1989). Here we define fit in terms of *moderation* (i.e., our logic is based on the interaction of different exogenous and endogenous variables (Venkatraman 1989)).

We use the typology developed by Miles and Snow (1978) and relate their strategy types to different HRM bundles. We suggest that the competitive environment moderates the influence of strategy on performance (i.e., external fit). In addition, the functional policies of an organization should be aligned with the business strategy (i.e., internal fit), and furthermore, we favor the complex interpretation of fit where organizations must match bundles of variables to each other to obtain fit. This produces two layers of internal alignment: an alignment of the different elements of multidimensional functional HRM policies (i.e., horizontal fit) *and* an alignment between the bundle or configuration of HRM policies and business strategy (i.e., vertical fit).

Miles and Snow (1978) proposed a strategy typology based on three strategy types (i.e., defenders, analyzers, and prospectors), and a residual category (i.e., the reactor) that captures organizations without consistent strategic behavior. We find that this typology capture the essence of three different strategic postures, and provides a sufficiently complex underlying conceptualization of strategy. There also are numerous studies based on these typologies, and overall, the empirical results seem to indicate some level of convergent validity (Doty et al., 1993). The strategy categories are well documented and provide a solid frame of reference. Miles and Snow (1978) do not discuss HR issues in detail, although they do identify key HR implications related to the three types of strategies.

Defenders favor high reliability as a criterion for obtaining internal consistency. Therefore, the HR bundle of a defender should aim at improving the reliability of HR. *Defenders* rely heavily on internally developed HRM practices, and employees are carefully selected, placed, and trained. Furthermore, maximum involvement and skilled execution are in

focus, and the employees are expected to have a long length of service in the organization.

Analyzers build selectively on strengths, although new attractive segments to apply strengths are monitored closely. The HR department plays the training and maintenance role by using accurate placement and appraisal devices. For innovation developments, the department plays a more developmental role by designing flexible and enriching team structures and processes. Encouraging and supporting self-development of abilities, skills, and knowledge is in focus. The HR department is mainly concerned with the coordination between accurate placement and flexible team structures.

Prospectors are concerned with achieving high innovation rates and developing new market niches. Being innovative and constantly looking for new opportunities frequently result in an acceptance of moderate near-term profits in the search for new segments. HR departments perform an entrepreneurial role, helping to identify and quickly developing crucial HR through rapid movement and alteration of assignments. High skill utilization is in focus. Employees are moved to match abilities, skills, and knowledge of specific tasks.

Table 5-2. Ideal HR system profiles

Dimensions	Defender	Analyzer	Prospector
HR System	Mechanistic	Mix of mechanistic & organic	Organic
Recruitment & selection	Standardized skills, and fewer professionals. Recruitment does not need to be selective.	Professionals for managerial positions. Moderate selectiveness.	Highly skilled professionals, highly selective recruiting and selection function.
Training	Relies on standardized skills and narrow/specialized job descriptions.	Experts in managerial and professional jobs. Moderate training.	Continuous upgrade of skills and high levels of expertise. High levels of training.
Degree of formalization	Standardized skills and work processes. HR systems emphasize formalization.	Experts in managerial and professional jobs. Low formalization for managers and professionals. High for other employees.	Many professionals, and personnel turnover is likely to be high. Low formalization.
Compensation	Jobs are well described, easy to monitor, and outcomes are predictable. Low emphasis on incentive compensations.	Most jobs are well described and easy to monitor. Managerial and professional jobs are an exception. Moderate emphasis on incentive compensation.	Jobs are loosely described, difficult to monitor, and outcomes unpredictable. High emphasis on incentive compensation.

In Table 5.2 we present our ideal HR architecture profiles. These are based on an assumption of internal consistency and an assumed fit with the strategy types. Borrowing the distinctions between organic and mechanistic from the organizational design literature, we argue that defenders should employ HR architectures that are mechanistic in their design, while prospectors should employ organic HR architectures. We claim that analyzers occupy a middle ground between the two. In order to achieve internal consistency, the different elements of the HR architecture should be characterized by being either organic or mechanistic. We propose that the broad claims in tables 5.2 and 5.3 are made operational and subject to further empirical analysis. Since the theoretical variables in the field of SHRM are reasonably operational, it should be a relatively easy task to test the predictions.

Table 5-3. Ideal effectiveness and alignment profiles

Effectiveness & Alignment	Defender	Analyzer	Prospector
Alignment between HR system & firm strategy	N/A	N/A	N/A
Communication	Jobs and procedures are well described. Few exceptions to daily operations and strategic changes. Low emphasis on communication.	Moderate change to jobs and procedures. Moderate change in daily operations and strategy. Moderate emphasis on communication.	Jobs and procedures change frequently. Changes need to be communicated effectively to ensure effective implementation.
Management skills of HR professionals	Since demand for service is relatively stable, HR professionals can be reactive administrators.	Moderate change in demands for service from line managers. HR professionals should be proactive in relation to managers and professionals. Focus on administration for other employees.	HR professionals must adapt to changing demands for service as needs of line managers change frequently. HR professionals should be proactive.
Executive leadership style	Internal process culture. Focus on formalization and structure.	Rational goal culture. Results-oriented with hard drivers, producers, and competitors as leaders.	Developmental culture. Focus on dynamics, entrepreneurship, and creativity.

Tables 5.2 and 5.3 explore the nature of ideal HR architectures and outline their profiles using the framework presented in Table 5.1. We have two claims in this regard: (1) if the HR architecture deviates from this profile, misfits will appear, and (2) if an HR architecture is chosen that does not fit with the business strategy, misfits will appear.

We predict that the potential misfits are greater for defenders and prospectors, since prospectors can choose very mechanistic designs and defenders can choose very organic designs. As analyzers occupy a middle ground between organic and mechanistic, we expect that misfits will be minor both in terms of internal fit of HRM systems and in terms of the fit between HRM system and business strategy.

Table 5.4 presents our propositions concerning the fit between overall HRM system characteristics and strategy type. We propose that the overall focus of organic HR systems is to meet demands for change, skill enhancement, and growth while the overall focus of mechanistic HR systems has to meet the demands for operational results, stability, and skill utilization. Table 5.4 illustrates our propositions concerning fit between business strategy and HRM, and we argue that a small deviation from an ideal HR architecture will lead to a small misfit (i.e., a small negative performance deviation), while a large deviation will lead to a large negative performance deviation. Thus, the cost of deviation increases with the size of deviation.

Table 5-4. Fit between HR architectures and strategy types

	Defender	Analyzer	Prospector
HR architecture			
Mechanistic	Fit	Minor misfit	Misfit
Mix of organic and mechanistic	Minor misfit	Fit	Minor misfit
Organic	Misfit	Minor misfit	Fit

6. INFORMING THE THEORY OF ORGANIZATIONAL DESIGN

The simultaneous demand for vertical as well as horizontal fit results in a very high level of complexity in relation to the concept of fit, even though the table above leaves the reader with an impression of a rather simple exercise. The complexity necessitates further theoretical clarifications and analytical requirements, as stated by Venkatraman back in 1989. First of all we believe that fit has a different meaning in the diverse functional areas within organizations. Therefore there are many different interpretations of

the concept across functional specializations and individuals. In the functional area under investigation here (HRM) fit can even be seen and interpreted in several different ways. We have mainly adopted the approach described by Guest as fit seen as a strategic interaction (an externally strategy driven choice), and as internally developed bundles of HR (not necessarily the number of HR practices but more the combination of these, see Guest 1997). Paauwe (2004) discusses outside-in and inside-out approaches to fit, i.e. fit is about looking internally at the different bundles of HR practices *and* about the design of HR-activities so they match external contingencies, including business strategy. Both approaches are relevant and should be combined in order to explain HR's impact on organizational performance. As we see it, it is essential for managers and strategists to understand that the different parts of an organization are interconnected, and, when the various subsystems in the organizations are aligned better performance will be the result. An increasing focus on HRM as a an element to include in design considerations will broaden the scope of organizational theory and it will add more substance to organizational design.

7. INFORMING THE PRACTICE OF ORGANIZATIONAL DESIGN

With an increasing focus on the human side of organizations, and in particular the effects of HR on organizational performance, the implications for organizational design are apparent. HR departments seem to be important actors in providing the apparatus (i.e., structure and processes) for the execution of strategies. HR departments in many organizations can also contribute to implementation of new organizational designs through their impact on execution. This provides HR departments with an outstanding opportunity to prove their "contribution", i.e. the continuous work towards fit is often carried out by HR in collaboration with line managers. Regardless of the specific organization of the strategy or redesign process in an organization, the HR department can nevertheless provide its competences as inputs to the process (Peltonen, 2003). The HR department has to support the implementation of the top-managements' strategic decisions, but recent developments tend to emphasize that strategy formulation and implementation requires the HR department's involvement (Holbeche, 1999; Beardwell et al., 2004; Paauwe, 2004). Consequently, the role of the HR is not limited to passing on information to the top-management, which will then make strategic decisions. On the contrary, employees and HR processes are considered one of the sources of building competitive advantages. In this situation fit could be interpreted as in the area of strategic interaction (Guest,

1997) compared with fit as either an ideal set of practices as bundles or as contingency. We also see fit as a horizontal phenomenon, i.e. as bundles of coordinated HR practices. Empirical support can be found for the performance effect of all the different approaches to fit, but in particular the fit based on internal bundles of HR practices is well documented.

8. CONCLUSION

This chapter maps the conceptual landscape between HRM and strategy, with the purpose of making the notion of fit more explicit both in terms of internal consistency of HRM systems (i.e., horizontal fit) and their fit with the strategy (i.e., vertical fit). More recently, the dominant emphasis within the HRM literature has been on vertical – rather than horizontal - fit. SHRM is about aligning and adapting HR activities to overall business strategy, leaving it a rather open question whether this creates any misfits between the different HR activities. The goal of this chapter is to identify a model of the contribution of HRM systems to performance based on Miles and Snow's (1978) theory of strategy types. Since the HR domain is characterized by very limited conceptual clarity, this exercise is important. Until now, the HR domain has been based on practices, which have been aggregated into HR bundles. These bundles have then been “translated” into HR strategies depending on the level of systematic and conscious work with alignment. We find it an important topic for further research to uncover the level of consciousness and system building in the field of HR.

In line with the expectation of this theory, we expect that optimal design to require both the design of a consistent HRM system and the selection of the right one. Efficient HR comes – not in one bundle – but in several different bundles, depending on the business strategy. In our interpretation, this is a classical best fit exercise, leading to best practices under diverging situations. By providing a more general guideline for designing HR bundles, compiled into HR strategies, which, combined with business strategies, will prove competitive, we suggest an alternative to the somewhat glamorized case-studies which often do not demonstrate any attempt to trace the similarities and regularities that exist across organizations.

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Chapter 6

THE FIT BETWEEN NATIONAL CULTURES, ORGANIZING AND MANAGING

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Abstract: We hypothesize a fit between national cultural environment of the organization and contingency variables subject to managerial discretion. Such a hypothesis implies that national culture is a contextual variable in contingency theory and uses empirically derived culture contingency theory (Hofstede, 1980) to argue that national cultural characteristics affect management's choices as to how to organize and manage people. A tightly matched population of 4400 city managers from 14 Western countries constitutes strong material for the analysis as cultural and behavioral variables were directly analyzed. Findings suggest that bureaucratic tools of management are positively correlated with uncertainty avoidance and masculinity and negatively correlated with individualism. In addition, relationship management is negatively correlated with power distance but positively correlated with individualism. Normative aspects of management are negatively correlated with uncertainty avoidance. We derive a number of important implications for organization design theory and practice.

Key words: Organizing, culture, managing.

1. INTRODUCTION

The best way to organize and manage people depends on the situation, broadly speaking. All organizational design decisions must balance two opposing considerations - differentiation and integration (Lawrence & Lorsch 1967).

The forces of specialization and competition of the global environment of business organization require that global business organization responds to

local markets conditions and at the same time integrates worldwide (Bartlett & Ghoshal 1989).

This chapter provides a report from the analysis with a focus on how national culture variables relate to a number of organizational, managerial and behavioral aspects.

The anchor of present day theory about global organization is clear in the classic arguments of contingency theory. Bartlett and Ghoshal theory is grounded in the original argument formulated by Lawrence and Lorsch that organizational differences between organizational units in 1) type of work performed, 2) time horizon of work and 3) people's skills and interpersonal orientation are the source of creative energy needed for innovation. Integration across differentiated units is required to respond to market needs, speedily, efficiently and effectively (Lawrence & Lorsch 1967).

Many labels have been attached to the two opposing considerations that design decisions need to address the global environment. Gibson and Birkinshaw (Gibson & Birkinshaw 2004) mention both of these as well as contradictory tensions and contextual ambiguity and refer to a number of previous examples of business units pursuing two disparate goals at the same time, such as manufacturing efficiency and flexibility (Adler, Goldoftas, & Levine 1999), (Carlsson 1989), differentiation and low cost strategic positioning (Porter 1980), incremental and discontinued innovation and change (Tushman & O'Reilly 1996), dual structure to manage innovation (Duncan 1976) and the conflicting demands for exploitation and exploration (March & Simon 1958).

Regardless of research specialization and particular approaches, there seems to be a common interest in helping business organizations to become more effective and efficient at the same time. In table 6.1, some of the different arguments in relation to the "best" way to organize in the most effective and efficient way are listed.

2. NATIONAL CULTURE - A CONTEXTUAL VARIABLE IN CONTINGENCY THEORY

Contingency theory proposes that organizational structure is dependent on organizational context. Furthermore, context and structure affect performance interactively. Contingency studies have focused on the relationship between organizational context variables, e.g. uncertainty, technology, competition and organizational structure, i.e. centralization, formalization. A body of research and theory argues for the view that managers make choices on the basis of cultural and political dimensions of their environment National culture, for example, has been shown to be

associated with tolerance for uncertainty and attitude towards and acceptance of hierarchical authority (Hofstede 1980). The concept of culture was introduced as a variable in order to criticize the existing state of knowledge within the field of organizational theory. After a “rebellious” period during the 1980s and early 1990s, the study of culture was atomized into many traditions.

Table 6-1. Classic arguments in relation to “best” organization way

Theory	Author	Argument
Ressource Dependence Agency	Pfeffer & Salancik, 1978	Managers are influenced by constituencies in their environment on whom they rely for resources
Strategy	Jensen & Mecklin, 1976	Top management’s incentives must be linked to the creation of economic value for shareholders
Structure	Miles & Snow, 1978	The strategy chosen by a firm has also been found to be consistently associated with the type of organizational structure adopted and with the leadership style employed
Leadership situation	Lawrence and Lorsch, 1967	All organizational design decisions must balance two opposing considerations; differentiation and integration. The choice of structure depends on the situation
Technology	Yukl, 1981	The nature of the task, commitment of subordinates, organization culture determine the most effective leadership
Size	Woodward, 1965	The technology of the organization influences the structure of the organization
Organization Culture	Blau, 1970	The size of the organization determines the differentiation and the organizational structure
National Culture	Schein, 1985	Leaders invent or discover assumptions, beliefs and behaviour to solve problems in the external and internal environment as the best way of perceiving, thinking and acting
Institutional	Hofstede, 1980,2001	National characteristics affect management's choices as to how to organize and manage people
	DiMaggio and Powel, 1986	Managers adopt new management practices to imitate what other firms are doing in their industry

Table 6.1 lists some of the classic arguments in relation to important factors on which it would depend on to be “best.” The argument of using either organizational or national cultural variables is similar to the one put forward by the classic contingency theories. Thus, the use of national culture as a contextual variable is grounded in the classical contingency theories. The question as to whether culture has the necessary characteristics to become a variable remains to be answered, e.g. is it measurable, reliable, and can the effects be predicted with some degree of reliability?

For instance, (Child 1981) found that similarities did exist across countries in the context structure. However, there was considerable variation across countries which could not be explained by contingency theory.

In addition, in respect to the variance in management choice, Mintzberg had noted this potentially important variable almost a decade earlier (Mintzberg 1973)

“We must devote considerable attention to the study of job differences. How do the emphasis on roles and the characteristics of different managerial jobs vary, and why? We know almost nothing about work variations by culture or by style of incumbent and very little about other factors that cause variations in managers’ jobs.”

One approach to the study of culture and organization remains within the contingency tradition of organization theory. Culture is here considered part of the external and/or internal environment of the organization (Duncan 1972), in part determining organizational behaviours and structures. In a comparative study of West German and British organizations, Child and Kieser (Child & Kieser 1981) found support for an effect on the organizational structure in the form of an interplay between cultural and traditional contingencies.

Here we will, however, focus only on the effects of culture. We will use the cultural variables derived from Hofstede’s IBM study (Hofstede 1980). These variables relate conceptually directly to the question of how to organize and manage people. Furthermore, as the IBM study became a classic study from around 1986, these cultural variables have been used widely in empirical studies of organization and management. Moreover, the results of a large number of replication studies indicate that national cultural dimensions, formulated by Hofstede (1980), seem reliable and robust over time (Søndergaard 1994), (Hofstede 2001). The possible effect of the cultural variables is supported by more than 400 significant regression coefficients.

Globalization forces tend to increase both the need to be effective in many specialized environments and at the same time have to reconsider integration at a regional level. As this trend is already in process, contingency theory may possibly help us understand the complex relationship between the regional/country context and the organizational structure and processes.

As “Buddha meets Hercules” (Lane 2004) more frequently and in more places in the global business organization, it may be rewarding to have a look at cultural similarities between countries in order to reduce cultural complexity of the global business environment.

This leads us to the following question: Do country or regional level variables contribute to our understanding of the problems faced by global organizations? In other words, in the context of contingency theory, is there a context variable beyond the country level that may help us understand the

best way to organize and manage people in different geographical and cultural environments?

In order to answer such a question, I will here analyze some findings of the U.DI.T.E. study of which I took part as a member of the Danish research team.

We report from the U.Di.T.E. study², which found a number of culture clusters, which were similar to the ones found in other studies, e.g. (Ronen 1986b) and Schraam-Nielsen et al. (2005). One such cluster of similar countries is the Scandinavian countries, i.e., Norway, Sweden and Denmark.

One hypothesis of the study is that cultural variables of these countries fit with contingency variables, such as centralization and formalization.

Low hierarchical distance fits with low centralization. Low hierarchical distance refers to a low degree of acceptance of hierarchical inequality. Low inequality is expected. The formulation of this hypothesis is based on a number of very different studies, such as (SpencerOatey 1997), (Eylon & Au 1999), (Dijke & Poppe 2003), (Oudenhoven, Mechelse, & Dreu 1998), (Søndergaard 1990).

High tolerance for the unknown fits with low formalization and standardization. A high tolerance of unknown situations is a reflection that uncertain and unknown futures are not interpreted as threatening. Neither formalization nor standardization are needed to make unknown future situations less threatening (Oudenhoven, Mechelse, & Dreu 1998), (Hofstede 1994).

The critique of the early 1980s assumes that national culture may also be an important context variable driving organizational structure. Culture entered organizational theory as a means to criticize the weak US manufacturing performance around 1980 (Cole 1979), (Ouchi 1981), (Pascale & Athos 1981).

The original approach to culture in organization theory from around 1980 assumes an explanation that is consistent with contingency theory of organizations. This point is e.g. made by Hall (1987), who argues that Asian firms' superior manufacturing performance is mainly attributable to the national culture of their employees and the design choice of the control systems.

Anthropologists, such as Margaret Mead, have used the culture studies to criticize their home civilization, a social level application. Organizational theorists have used cultural variables at the organizational level to highlight

² A brief outline of the history and the methodology of the U.DI.T.E. Leadership Study is in the appendix of this paper. The project was named after the Union des Dirigeants Territoriaux de l'Europe.

the shortcomings of organizational performance as well as a number of shortcomings in organizational theory in general.

A large body of research applying Hofstede's cultural variables has only indirectly supported, mostly by referral, the argument that national culture influences the best way to organize and manage people (Hofstede 2001). Another indirect support derives from the tradition of comparing management decision-making and practices in different countries, e.g. Peterson and Smith, and then referring indirectly to culture variables with the country as a proxy.

A survey of city managers of Western countries makes possible the study of the relationship between values and organizational practices in the same type of organization across a large number of countries since values and practices are both included in the study.

3. THE FINDINGS ON NATIONAL CULTURES OF THE U.D.I.T.E. PROJECT

Empirical studies of culture and organization often refer cultural characteristics to organizational characteristics. A study of city managers in 14 Western countries (N: 4400) provides an unusually strong material for the analysis of the link between culture and organizational behaviour since both cultural values and organizational design variables are parts of the survey data. The participants in the U.D.I.T.E. leadership study are listed in the appendix. The researchers participated by providing the country data and by doing analyses in different ways.

The material is suitable for the analysis of the link between national, cultural and organizational behaviour for two major reasons.

First, we are able to compare data from the same source at the country level with data at the individual level. Usually such comparisons are made between independent studies.

Second, the selection of appointed Chief Executive Officers, i.e. the highest ranking appointed official in the Western local government, satisfies the need for systematic functional equivalence in cross-cultural comparisons (Berry 1969). The Western bias in Hofstede's original cultural dimensions is not in conflict with this sample of only Western countries.

The findings of the Hofstede dimensions from the U.Di.T.E. study are listed in Table 6.2. The scores of the four original Hofstede dimensions were published in (Søndergaard 2002).

The scores of the 14 countries cluster in three groups: a Nordic group, an Anglo-Saxon group and a Southern European group. The clusters were published by Søndergaard (Søndergaard 2002). Some countries are 'stable'

in that they are located in these groups on all four dimensions; others are less stable.

Table 6-2. Country scores of cultural differences on four dimensions in three country groups

Country	Power Distance	Individualism	Masculinity	Uncertainty Avoidance
Finland	27	88	-42	10
Norway	20	121	-38	-27
Sweden	25	112	-58	-8
Denmark	10	123	-34	-34
Great Britain	12	122	4	22
Ireland	21	108	12	-8
USA	19	115	11	29
Australia	22	120	-6	21
The Netherlands	30	97	-31	18
Belgium	31	94	-10	104
France	34	90	8	89
Italy	14	81	19	90
Spain	31	64	9	120
Portugal	35	89	20	73

Indeed, a cluster analysis using all four original dimensions to distinguish Western cultures (i.e. 'power distance', 'individualism', 'masculinity', 'uncertainty avoidance') produced three country clusters as indicated in Table 6.2. Operational definitions of these dimensions may help us explain these clusters. The key element in power distance is the notion of hierarchical distance. Indications of power distance are measured e.g. by degree of open disagreement of subordinates with their direct superior.

The key element in uncertainty avoidance is the importance of the notion of truth. Uncertainty avoidance is measured e.g. by degree of willingness to break organizational rules if needed and importance of managers to have precise answers to work-related questions.

The key element in individualism is the notion of identity. Degree of individualism may be measured, e.g. others may be classified as individuals or as in-group or out-group and/or according to whether or not they have a sharp distinction between work and private life.

The key element in masculinity is the concept of social gender roles. Masculinity is measured, e.g. by degree of functions; the roles of men and women may be clear and distinct or the roles of men and women may overlap.

The Nordic country cluster consists of Finland, Norway, Sweden and Denmark. The Southern European country cluster includes Belgium, France, Italy, Spain and Portugal. The Anglo-Saxon country cluster contains the UK, Ireland, the USA, Australia and the Netherlands.

Data from the U.Di.T.E. leadership study show the expected differences; the Southern European countries score high on 'power distance' and 'uncertainty avoidance', whereas the Nordic countries and a group of the Anglo-Saxon countries (the UK, Ireland, the United States and Australia) score low on these dimensions, as they usually do. The Netherlands and Belgium belong to the group of Southern European countries on this dimension, whereas Italy belongs to the Nordic group. The mid-European countries are expected to belong to different groupings (Ronen 1986a).

Italy was not expected to fit into the Southern European pattern. A re-examination of the translation of the questionnaire did not find any sources of misunderstanding.(Søndergaard 2002) A possible explanation is that Italian CEOs tend to have a higher status and a more powerful position since power distance is negatively related to degree of status, hierarchical position and level of education(Hofstede 2001)

The data analysis also shows that local government chiefs are all highly individualistic in their life orientations. Most individualistic people are local government CEOs from the UK, as expected, and from Denmark. The less individualistically-oriented CEOs are found in Spain. By comparison, local government CEOs from Italy, Portugal, Finland and France are somewhat more individualistic.

According to our analysis, all European local government CEOs score low on 'masculinity', indicating a very strong social interest in and commitment to the social welfare of the local community on the part of local government CEOs.

The care for the unfortunate, poor, sick, old, or unemployed is measured by the 'masculinity' dimension. As expected, CEOs from countries with a long tradition for welfare policy, such as Sweden, Finland, Denmark and the Netherlands, score lowest on masculinity. In comparison, CEOs from Portugal, Italy and France and Spain score high on masculinity.

Direct supervision, mutual adjustment and standardization represent three ways in which organizations may coordinate their work. Direct supervision implies that one person is responsible for the work of others, issues direct instructions to them and monitors them directly. Mutual adjustment, on the other hand, means that those who perform a task control the work, using informal communication to adapt to each other along the way (Mintzberg 1983).

Mutual adjustment implies no usage of the hierarchy in the process of work coordination. Direct supervision, however, entails that the hierarchy is involved directly in the process of coordination. The vertical distance in an organizational hierarchy is associated with Hofstede's power distance. Coordination is achieved by standardization, e.g. by specifying the content

of the work, the result of the work, or the kind of training required to perform the work (Mintzberg 1983).

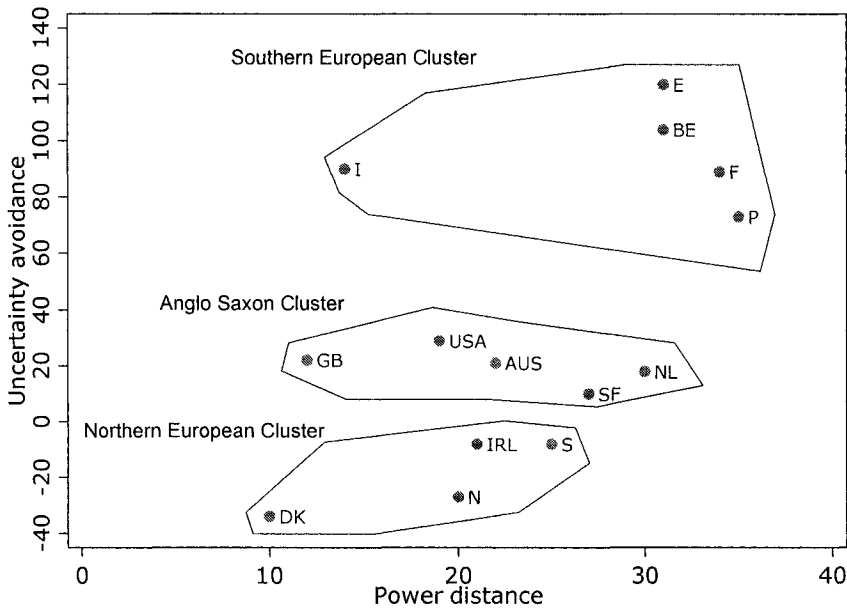


Figure 6-1: Position of 14 countries on power distance and uncertainty avoidance dimensions

'Mutual adaptation' is a mechanism of coordination that fits with low degree of uncertainty avoidance³. Standardization is a mechanism of coordination that fits with high degree of uncertainty avoidance. Direct supervision is a mechanism of coordination that involves a degree of hierarchical activity; high degree of direct supervision is related to high degree of power distance, and low degree of direct supervision fits with low power distance.

A cluster analysis produced three clusters: a Southern European cluster (Spain, Belgium, France, Portugal and Italy), a cluster of countries in Northern Europe (Denmark, Norway, Sweden and Ireland), and a cluster of

³ 'Fit' is an illustrative point of reference. There is no empirical analysis of the correspondence between the preference of using rules, encouragement and tasks and the Hofstede dimensions.

mostly Anglo-Saxon countries (the UK, the US, Australia, Finland and the Netherlands).

These findings and observations lead us to formulate a number of propositions:

Proposition 1: If employees have a high tolerance for authority as well as a high degree of uncertainty avoidance, then we would expect to see a preference of managers to select direct supervision and formalization or standardization as a means of coordination.

Proposition 2: If employees have a low tolerance for authority as well as a high degree of low uncertainty avoidance, then we would expect to see a preference of managers to select a low degree of direct supervision and mutual adaptation as a means of coordination.

Furthermore, motivation has been associated with satisfaction of a number of human needs, some of which can be connected to two of Hofstede's dimensions. The horizontal axis of Figure 2 depicts belongingness needs versus esteem needs. These need categories fit with the masculinity dimension. The vertical axis shows achievement needs as a contrast to security needs. These need categories fit with the uncertainty avoidance dimension.

The cluster analysis resulted in three clusters. The cluster of Southern European countries, i.e. Spain, Belgium, France, Portugal and Italy, indicates a preference for security and esteem needs. The cluster of Northern European countries, i.e. Denmark, Norway, Sweden and Finland, reflects needs for belongingness and achievement. The cluster of mostly Anglo-Saxon countries, i.e. the UK, the US, Australia, Ireland and the Netherlands, reflects esteem and achievement needs.

In the U.Di.T.E. study, we find three clusters of countries; Southern Europe, Northern European and Anglo-Saxon countries. These three clusters are found regardless of whether we cluster on the basis of all four dimensions of cultural differences or on pairs of dimensions. This pattern of differences between national groups of respondents seems non-random and stable. We have replicated the cultural regions identified by Ronen and Shenkar (Ronen & Shenkar 1985), who reviewed eight studies, where different measures for cultural values were used.

Furthermore, our findings confirm a basic divide identified by Smith et al. (1996), who confirmed a major cultural divide between Southern and Northern Europe based on a study of a range of personal values and behavioural intentions of 10,000 managers and employees. Very similar country clusters were found in the variation of leadership prototypes across 22 European countries (Brodbeck et al. 2000).

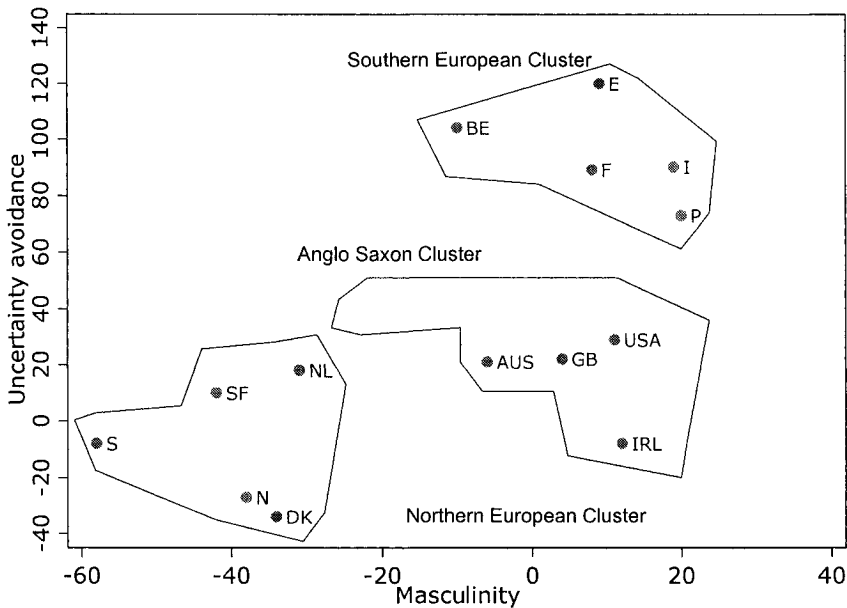


Figure 6-2. Position of 14 countries on masculinity and uncertainty avoidance dimensions

Our U.Di.T.E. respondents fit the pattern of regional clusters of very different types of respondents surveyed on both value and behavioural intention issues. The profound nature of such groupings has also been illustrated by other issue areas analyzed in the U.Di.T.E. book series (Mouritzen & Svara 2002).

4. RELATIONSHIP BETWEEN NATIONAL CULTURE AND ORGANIZATIONAL STRUCTURE

A main point of this chapter is the investigation of the relationship between national culture and organizational variables, and a number of statistical analyses were performed in order to provide insight into this relationship.

The choice of hierarchical decision place is a classical design decision. The city managers are only assumed partly to have a say in this design decision, here operationalized as the degree of discretion delegated to lower levels of the hierarchy. Power distance and uncertainty avoidance correlate

negatively with the change of delegation within the past decade. All questions of the U.Di.T.E. study are listed in Klausen and Magnier (1998).

Table 6-3. Culture and change of delegation within the past decade

An organization may be characterized as more or less centralized, following the degree of discretion delegated to the lower levels of the hierarchy.	Power distance	Uncertainty avoidance	Individualism	Masculinity
Please indicate whether your municipality has become more or less centralized over the past decade. 1 = much more centralized; 5 = much more decentralized; 3 = no change	-.21***	-.33***	.22***	-.29***
Spearman correlations ***P= 0.001				

5. **RELATIONSHIP BETWEEN NATIONAL CULTURE AND MANAGEMENT DISCRETION IN RELATION TO MANAGEMENT OF PEOPLE**

In relation to organization and management of people, I have included only the aspects of managerial work on which managers have a direct influence. The respondents were asked to prioritize 16 managerial tasks on which they put emphasis in their daily work. We found that all four cultural dimensions seem to correlate strongly with about half of these tasks.

In order to further our understanding of the groupings of the various managerial tasks, a factor analysis was performed from which four factors emerged:

1. Bureaucratic management, i.e. tools such as development and implementation of new routines and work methods as well as ensuring that rules and regulations are followed. This factor includes providing guidance to subordinate staff and supplying the mayor with technical advice. These preferred management activities do not include attempts to influence the decision-making since this item loads negatively in this factor.
2. Management activities oriented towards the organizational process are loaded together in a second factor. Preferred tasks are ensuring that resources are used efficiently and attracting resources from external sources. The factor includes tasks in relation to the management of affairs, accounts and budgetary control as well as the formulation of ideas and visions.
3. A third factor covers preferred managerial activities towards cooperative relationship management such as solving human relationships and giving the mayor political advice. The factor also includes tasks such as information

about the citizens' viewpoints, but also includes cooperation between departments and the formulation of ideas and visions.

4. Management tasks regarding norms in respect to the proper roles of politicians and cooperation between departments are normative aspects of management.

Table 6-4. Four Ways of Managing

	Bureaucratic	Process	Cooperation	Normative
Develop and implement new routines and work methods	.94			
Ensure that rules and regulations are followed	.82			
Guide subordinate staff	.81			
Give the Mayor technical advice	.60			
influence decision-making processes	-.67			
Attract resources from external sources		.86		
Promote and encourage new projects in the community		.76		
Manage economic affairs, accounts and budgetary control		.70		
Formulate ideas and visions		.65		
Solve human relationships			.75	
Give the mayor political advice			.72	
Be informed about citizens' viewpoints			.64	
Cooperation between departments			.62	
Formulate ideas and visions			.58*	
Norms concerning the proper roles of politicians				.91
Cooperation between departments				.59*

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Loadings beyond .55 are shown in the table for simplicity.* second loading

Table 6-5. Dimensions of National Cultures and four ways of managing people

	Power Distance	Uncertainty Avoidance	Individualism	Masculinity
B ureacratic N: 14	.30	.30**	-.52*	.47*
Process N:14	.03	-.19	.03	.17
Cooperation N: 14	-.28***	-.23	.42*	.08
Normative N: 14	-.30	-.56*	.17	-.25

* Kendall's tau correlation significant at the 0.01 level

** Kendall's tau collelation significant at the 0.05 level

*** Kendall's tau collelation significant at the 0.10 level

To sum up our findings, we can recap the propositions. In proposition 1, we stated that if employees have a high tolerance for authority and a high degree of uncertainty avoidance, then we would expect to see a preference of managers to select direct supervision and formalization or standardization as a means of coordination.

We found that traditional tasks of management, including formalization and direct supervision tasks, were positively correlated with power distance and even stronger with uncertainty avoidance. Correlations with the two remaining cultural dimensions indicate that relations which were not included in the propositions may be at stake here. This is particularly the case of the positive relationship between masculinity and choice of traditional ways of managing people.

In proposition 2, we stated that if employees have a low tolerance for authority and a low degree of uncertainty avoidance, then we would expect to see a preference of managers to select a low degree of direct supervision and mutual adaptation as a means of coordination.

We found that politicking, i.e. using influence as a managerial task, was negatively correlated with power distance and uncertainty avoidance. If a low degree of power distance and a low degree of uncertainty is present, then managers tend to have a preference for politicking.

6. INFORMING THE THEORY OF ORGANIZATIONAL DESIGN

This chapter has mainly been data driven. The analysis of the data has helped to enlarge the contingency theory. This analysis has provided a rare insight into the interplay between differences in national cultures and variations on some dimensions of management behaviour.

Our data from the UdiTE project is a strong source of information, like the respondent was at the very same organizational apex in 14 Western countries (large, closely matched sample), providing information about values; management behaviour and organizational characteristics form the same organization (rich data). Our results were supported by results from other smaller studies of often partial nature.

The nature of causality related to culture is, however, still not clearly understood. A way to pursue this relation is to study national culture within multi-contingency theory. This expectation is based on the results of this study as well as earlier research.

7. INFORMING THE PRACTICE OF ORGANIZATIONAL DESIGN

The chapter informs the practice of organizational design in a number of ways. For instance, using fits between cultural dimensions and management behavior may turn out to be conducive to organizational performance as misfits may turn out to be counterproductive. However, the choice of fit between cultural characteristics and forms of management behaviour may turn out to be a sound choice as point of departure in a global business context, where the time to learn new cultures is limited, as most important markets have to be addressed simultaneously. In short, a fit between culture and other variables is a good thing to work toward in the global business context. A misfit should consequently not be a good thing and should be avoided.

Moreover, it may turn out to be tricky to use fits and misfits in the practice of organizational design. If you distinguish between values and practices in respect to using this information on culture in practice, values are assumed to be relatively more stable than practices. In other words, we are embedded in the values of the national culture in which we spent the years of primary education, either by birth or by parental choice.

However, organizational practices can be learned. Learned practices may fit or misfit with cultural values. We are, as it was formulated in a BBC review of Hofstede's *Culture's Consequences* (1980), imprisoned by our national culture (Jacobsen, 1981). Managerial and organizational practices may change more freely than cultural values

Also, the concept of fit and misfit is likely to act differently in relation to culture in comparison to other situation variables. Because of the nature of culture, cultural differences cannot be equated with complexity, i.e. as cultural differences increase then complexity tends to increase. The dynamic nature of cultural variables makes it more difficult to account for an effect on other managerial variables, making it harder to deal with in practice in comparison to e.g. size or level of experience.

APPENDIX: THE SURVEY

The surveys in the 14 countries were conducted from November 1995 until May 1997. A joint questionnaire was prepared during 1995 by the European countries involved in the U.Di.T.E. Leadership Study. In January 1995, the first joint meeting of the researchers was held in Odense, Denmark. At this meeting, the attendees agreed on terminology and type of questions to be included in the survey. During the following months, the

team at Odense University prepared a draft of the questionnaire, which was reviewed at a meeting in Bordeaux, France, at the end of April. The comments and ideas from the Bordeaux meeting were incorporated into the questionnaire during the summer. Each country team translated the questionnaire into the national language, and the first surveys were conducted by the end of 1995.

The joint questionnaire consists of 54 core questions with 254 variables. Each country was allowed to add specific questions. The responses to these questions, however, are not part of the joint data file. The third joint project meeting was held in Odense in January 1996. At this meeting, a coding workshop was conducted with student assistants from nine countries. During this week in Odense, the coders participated in the development of general coding principles as well as in the development of categories for open-ended questions. The trained coders returned to their countries to finish the job in accordance with the common principles. The researchers who did not participate in the coding workshop were given individual instructions about how to code the questionnaires and how to work with the data file. Researchers from the United States and Australia joined the project in 1996 and utilized the joint questionnaire and common coding scheme.

Table 6-6. Response rates

Australia	Oct 96	670	246	37
Belgium	Nov-Dec 95	589	351	60
Denmark	Nov 95	275	200	73
England	Dec 95 – Feb 96	511	284	73
Finland	March – April 96	439	308	70
France	Dec 95 – Jan 96	722	266	35
Ireland	May – June 96	34	21	62
Italy	Dec 95 – March 96	2000	541	27
Netherlands	March – May 96	584	404	69
Norway	Jan 97	434	325	75
Portugal	Dec 95	275	104	38
Spain	Nov 95	5000	366	7
Sweden	Nov-Dec 95	279	224	80
USA	Jan – May 97	1178	697	59
Australia	Oct 96	670	246	37

Table 6.6 gives information about the survey in each of the 14 countries. The response rates vary considerably across countries. In order to increase the representativeness of the samples, weights have been created along two dimensions. The first dimension assures representativeness within each country according to size of municipalities. The second dimension assures that all countries are weighted equally, regardless of sample size.

In the creation of the weights, a special issue concerning the many small municipalities in the Southern European countries had to be dealt with. These countries tend to assign fewer functions to municipalities than other countries. Consequently, very small communities have few employees, and consequently the CEOs' responsibilities are limited. In France, no questionnaires were sent to municipalities with less than 5,000 inhabitants. In Italy and Spain, cities of all sizes were surveyed, but only cities with a population of 2,000 or more were included in the weighted dataset of this study.

Table 6-7. Correlations with the original scores from the IBM study

Culture's Consequences 1970	SSAS 1983	UDITE 1995	Pilots 1996
PD	,66***	,71	,81***
IDV	,54*	,52	,67***
MAS	,82***	,78	70
UA	,63	,87	,23
N	1590	4400	15454

Spearman rank

* $p=0,05$ ** $p=0,01$ *** $p=0,001$

SSAS is Hoppe, M.H., 1990, A Comparative Study of Country Elites, unpublished dissertation, University of North Carolina at Chapel Hill.

Pilots is Helmreich R.L., and Merritt, A.C., 1998, Culture at work in aviation and medicine: National organizational and professional influences, Aldershoot.

Table 6-8. Rotated Component Matrix

	Component			
	1	2	3	4
develop and implement new routines and work methods	.942	.091	.043	.065
ensure that rules and regulations are followed	.820	.150	-.155	-.502
guide subordinate staff	.812	.117	.031	-.525
influence decision-making processes	-.672	.353	.285	.282
give the Mayor technical advice	.604	.008	.094	.101
make sure that resources are used efficiently	.176	.859	.225	.080
attract resources from external sources	.032	.857	.057	-.376
promote encourage new projects in the community	-.257	.759	.234	.396
manage economic affairs, accounts and budgetary control	.324	.697	-.171	-.545
formulate ideas and visions	-.409	.653	.576	.151
solve human relationships	.401	.062	.745	-.420
give the Mayor political advice	-.350	-.249	.723	.360
informed about the viewpoint of employees	.134	.331	.691	.121
be informed about citizens' viewpoints	-.538	.354	.643	-.102
cooperation between departments	.073	.295	.617	.586
norms concerning the proper roles of politicians	-.050	-.031	.030	.907

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

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PART 3: DESIGN AND PERFORMANCE

Chapter 7

ORGANIZATIONAL DESIGN, LEARNING, AND THE MARKET VALUE OF THE FIRM

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Abstract: We compare market returns associated with firms' creation of new units focused on e-business. Two aspects of organization design - governance and leadership - are considered with regard to exploitation- and exploration-oriented organization learning. We find that exploitation in governance (high centralization) is associated with a lower mean and variance in returns; that exploitation in leadership (appointment of outsiders) is associated with the same mean yet higher variance; and, among units exhibiting both modes of learning, the variance of returns are *not* equal.

Key words: Organization design, organizational learning, exploration, exploitation, variance.

1. INTRODUCTION

Scholars of organization studies agree that organizational effectiveness depends in large measure on the demonstrated ability of the organization to maintain a balance between two distinct yet complementary modes of organizational learning known as exploration and exploitation (March, 1991, 1995; Levinthal and March, 1993; Sorenson & Sorensen, 2001; Sorensen, 2002; Hunter, 2003). The former is characterized by the experimentation with new ideas, paradigms, technologies, strategies, and knowledge. The latter is characterized by the elaboration, refinement, and improvement of existing capabilities and ideas. In organization design, these learning modes are reflected in the impact of firm choices such as delegation of authority,

leadership and governance, incentives, and internal processes on firm performance.

Organization structures may lead to one type of learning, such as decentralized, autonomous structures to encourage exploratory goals like innovation and new product development, and centralized structures to achieve efficiency and economies of scale (Burns and Stalker, 1961; Hedberg et al, 1976). Organization structures may also exhibit or seek to strike a “balance” between these two modes of learning, e.g. by combining firm-wide incentives that encourage broad search and exploration with an active hierarchy that provides stability or exploitation (Rivkin and Siggelkow, 2003) or via a switch between centralization and decentralization at various points in time (Siggelkow and Levinthal, 2003).

In franchise governance systems firms achieve the exploration/exploitation balance by maintaining a mixture of company-owned franchises that are more likely to focus on exploitation, and independent operator franchises that are more entrepreneurial (Sorenson and Sorensen, 2001). In firms within a single governance structure, Vera and Crossan (2004) argue that leaders must achieve the balance themselves by performing roles involving both “transactional” (the institutionalization, reinforcement, and refinement of existing routines) and “transformative” (changing the existing strategy and routines) behaviors.

Incentives also promote or are indicative of different types of learning. A balanced approach may be achieved by combining decentralized decision making with a strong identification with top management goals (Child, 1984; Nagar, 2002). Another approach is to rely on compensation schemes that reward company-wide performance (Harris and Raviv, 2002) over both the short and long-term.

Finally, other studies focus on the role of organizational processes and the two types of learning. Firms pursue control and reliability while simultaneously developing new, innovation-enhancing competencies (Sutcliffe et al, 2000). Firms employ design elements to balance the need to search broadly for new possibilities in its environment as well as to stabilize around a good set of opportunities once discovered (Rivkin and Siggelkow, 2003). Firms may adapt over time by changing processes by “opening up” (exploitation generating exploration) or “focusing” (exploration encouraging exploitation) (Holmquist, 2004).

Recent studies propose that successful organization designs achieve the required dual focus by some mixture of structures, processes, incentives, and leadership (e.g., Benner and Tushman, 2003). A structure that encourages exploration, for example, is mitigated by incentives that foster exploitation. This contrasts with older studies of organization design that imply that consistent or “pure” designs are optimal. While organization design scholars

believe that there is no one best way to organize, the optimal organization design is asserted to employ consistent design elements.

Contingency theory, for example, suggests that organizations that demonstrate a fit between their internal structural elements and contextual factors are more likely to succeed (Burton and Obel, 1998), and conversely when systems are poorly attuned to contextual requirements problems ensue. Ketchen et al (1997) find that organization performance is partially explained by its configuration, and that internally consistent sets of firms perform better. "Configurations, at their most useful, represent common, thematically driven alignments of elements or dimensions." (Miller, 1999: p. 28). If we regard exploration and exploitation as configuration types then, we might question whether alignment is achieved by mixing exploration-encouraging and exploitation-encouraging elements or whether alignment is achieved by focusing solely on one or the other in a consistent or "pure" form. Rivkin and Siggelkow (2003), for example, find that their results "call into question the recommendation that firms pursue pure "consistent" configurations" (ibid, p. 309).

Thus, it remains unclear whether a better organization design or configuration is one that consistently pursues exploration or exploitation, or is one where the balance is maintained through a mixture of the aforementioned mechanisms. After all, we believe that there are traps that encourage an excessive focus on either exploration or exploitation, at the expense of the other (Levinthal and March, 1993). And if there are "balanced" types that make sense, are some balanced or mixed organization designs better than others?

We focus on the effects of alternative organization designs that promote exploration and/or exploitation in new e-commerce focused business units, specifically their governance (whether to establish a stand-alone subsidiary or a centralized department or division) and leadership (whether the venture will be led by an outsider or insider). We develop four hypotheses and test them on a sample of 373 press releases describing the creation of dedicated business units focused on e-business during the years 1993-2002. We address the consequences of design and governance choices on two dimensions of performance: the mean level and the variance (Jemison, 1987) of market returns.

The remainder of this paper is organized as follows. The following section contains an overview of March's (1991, 1995) theory of organizational learning. This overview draws on Hunter (2003) and establishes the rationale for our attention to variance, rather than mean levels of performance. The third section contains our literature review and development of four hypotheses. We next describe our research methods. The fifth section reports the results of our empirical tests of the four

hypotheses. The paper ends with a discussion of the implications of our findings.

2. LITERATURE REVIEW AND HYPOTHESES

March (1991, 1995) described two fundamentally distinct, yet complementary ways that organizations learn and, thereby, change their performance: exploration and exploitation. Three of the most important bases for differentiating between these two types of learning are: their goals and objectives; the means by which each is accomplished; and their implications for firm performance, especially the time period over which that performance is realized (see Table 7.1).

The objectives of exploration include the attainment of flexibility and the development of novel means of solving organizational problems (March 1991, p. 72; March 1995, p. 432). Exploration is accomplished by activities which *increase* variation in organization processes, tasks, and functions. These include complex search, basic research, invention, innovation, risk-taking, relaxed control, and loose discipline (March 1991, p. 71; March 1995, p. 432). By contrast, the goals of exploitation are typically more objective and particular. They are intended to meet clearly-defined and short-term objectives, and to improve efficiency and reliability (March 1995, p. 431). Learning of the exploitative variety is achieved through actions that emphasize the *reduction* of variation in organizational activities such as the standardization of procedures, risk-aversion, and the emulation of successes (e.g. benchmarking and best practice adoption) (March 1995, p. 432)

The effects of exploration and exploitation are realized in categorically-distinct changes in the performance distribution of the firm (March 1995, p. 432). The benefits or returns to exploration are more uncertain than those associated with exploitation (March 1991, p. 85). Exploration produces outcomes that have higher variance (they tend toward both tails of the historical performance distribution) and are more distant in time. The returns to exploitation, in contrast, are more immediate and less likely to produce performance outcomes that deviate significantly from the historical levels (March 1995, p. 432). This difference has important implications. March argues that survival, let alone sustained superior performance, requires that firms engage in “sufficient” exploitation to ensure the current viability of the organization while exploring “enough” to ensure its future viability (March 1991, p. 71, 72).

We aim to clarify what constitutes “sufficient” exploitation and “enough” exploration by focusing on the effects of organization designs that blend or

mix the two learning modes compared to pure or consistent organization designs.

Table 7-1. Key characteristics of exploration and exploitation

Characteristic	Exploration	Exploitation
Core Features	Experimenting with new ideas, paradigms, technologies, strategies, and knowledge	Elaborating on existing ideas, paradigms, technologies, strategies, and knowledge. Improving and refining existing capabilities, technologies, etc.
Goals	(To find) new alternatives that improve old ones; Flexibility; New knowledge	(To meet) Clearly-defined, short-term objectives and immediate targets; Short-run efficiency and improvement; Legitimacy; Reduced costs; slack; Reliability
Returns	Distant in time; High variance; Tails of performance distribution	Proximal in time; Low variance; Near historical mean of performance
Means/Methods of Implementation	Searching for new ideas; Deviating from standards; Variation; Innovating; Inventing	Acting in an appropriate manner; Adopting standardized procedures; Assuming proper organizational form; Defining and measuring performance; Downsizing and Re-engineering; Emulating success; Pursuing legitimacy; Eliminating redundancies Tightening slack; Focusing effort; Routinizing; Specializing; Total Quality Management; Managing the capabilities of the organization; Tying competencies to produce joint products; Linking activities to performance measures
Other Characteristics	Novel Serendipitous Risky	Choice Risk-aversion Sane (Sanity)
Facilitators	Free association; Loose discipline; Madness; Play; Relaxed control; (Stimulated by) Failure	Analysis; Close attention; Control; Discipline; Execution; Focused attention; Hard work; Institutionalization; Precision; Production; Refined detail; Repetition; Sharp focus

3. FORMATION OF NEW BUSINESS UNITS

We measure the impact of announcements of new e-commerce business units on firms' stock prices, focusing on the choices the firms make in the governance and leadership of the new units. The efficient markets hypothesis holds that (1) stock prices incorporate all currently known information about firms' future profit streams and are, thus, the net present value of those profits and (2) that that new information about organizational or environmental changes that affect firms' future profit streams are rapidly reflected in stock price (Fama et al, 1969). Thus, we expect the announcement of the creation of new e-commerce-focused organizational units to have a significant and positive effect on the market value of the firm, primarily because such announcements are indicative of companies' enhanced net profit streams due to new market gains and/or operational efficiencies.

Hypothesis 1: The announcement of a new electronic commerce focused business unit will have a positive cumulative abnormal return.

4. GOVERNANCE AND ORGANIZATION LEARNING

Organizations create subsidiaries, strategic business units, or internal divisions to address changes or uncertainties in the environment . Less autonomous business units may be expected to search locally by using knowledge that is closely related to their existing knowledge (e.g. Stuart and Podolny, 1996). Spin-outs and autonomous business units involve a conscious effort to employ more exploratory search processes that develop new organizational routines and knowledge (March, 1991; Miner, Bassoff, and Moorman, 2001).

Strategic choice theories predict that the creation of more autonomous organizational units creates value for firms because the unit's managers have greater latitude to pursue new market opportunities and thus will tend toward more purely profit-maximizing strategies. Christensen (1998) argues that because of customer preferences and existing resource allocation processes, firms pursuing radical innovation must create independent spinouts to be successful. Similarly Leifer (Leifer, et al, 2000) found that new businesses escape the inertia of existing businesses by creating radical innovation hubs and corporate venture units. Such units are not without their shortcomings, however. In particular, more autonomous groups make it more difficult for

the main organization to monitor behavior, to use hierarchies, and/or to maintain a common culture. Accordingly, we hypothesize:

Hypothesis 2: $\sigma_{CAR (Centralized)} < \sigma_{CAR (Decentralized)}$

5. LEADERSHIP AND ORGANIZATIONAL LEARNING

Several research traditions demonstrate that hiring an insider to lead a new unit captures or exploits existing capabilities and routines, while outsiders bring new capabilities and routines. The resource based view of the firm holds that insiders bring known routines and knowledge to the new organizational unit, while outsiders represent the opportunity to acquire new capabilities (Barney, 1991). Work in organizational demography shows that firms are likely to hire outsiders in times of change (Haveman, 1995). If it is the case that at times of change, existing routines and organizational processes are less appropriate or efficient for the requirements of the new market opportunity (Sorensen, 2002), then it follows that higher variance in returns will be associated with the appointment of insiders who have more knowledge about the organization's current capabilities but less knowledge about and experience with the requirements of the new market environment. Thus, we hypothesize:

Hypothesis 3: $\sigma_{CAR (outsider)} < \sigma_{CAR (insider)}$

6. COMPARISON OF PURE AND BALANCED CASES

We next consider the effect of combining these organization design choices in both "pure" or internally consistent and "mixed" organization designs. The impact that these choices have on variance in performance provides the key for assessing their relative benefit. In Hypotheses 2 and 3 we argued that greater centralization of authority and the presence of an outsider were both indicative, in this context, of exploitation and would be associated with lower variance in performance than the exploratory design choices. Combining the arguments for the prior hypotheses we get:

Hypothesis 4: $\sigma_{Internally\ Consistent\ Exploration} > \sigma_{Mixed} > \sigma_{Internally\ Consistent\ Exploitation}$

Distinguishing between the two mixed options involves determining whether in this context the governance decision dominates the leadership

decision, in terms of the impact on variance in performance. However, the literature does not provide strong priors on how to determine which aspect of organization design will have the greater impact. Rather than attempt to adjudicate between these two positions, we instead opt to articulate two competing hypotheses and to allow the data to resolve the matter.

In summary, if the environment is one that requires that places superior value on higher levels of organizational control to monitor the success of the new venture than on the need to acquire from outside the skills and capabilities to run it, then it can be said that the centralization question dominates leadership and, thus:

$$\text{Hypothesis 5a: } \sigma_{\text{Pure: Decent + Insider}} > \sigma_{\text{Mixed: Decent + Outsider}} > \sigma_{\text{Mixed: Cent + Insider}} > \sigma_{\text{Pure: Cent + Outsider}}$$

If, however, the environment necessitates that a firm's need for an outsider who possesses skills and capabilities to lead the unit is greater than its need to control and monitor the new venture, then the prediction would be:

$$\text{Hypothesis 5b: } \sigma_{\text{Pure: Decent + Insider}} > \sigma_{\text{Mixed: Cent + Insider}} > \sigma_{\text{Mixed: Decent + Outsider}} > \sigma_{\text{Pure: Cent + Outsider}}$$

7. RESEARCH METHODS

Press releases obtained from two newswires – PR Newswire and Business Wire- form the primary data for this study. Press releases were gathered through a systematic search of the Dow Jones Interactive® press release database for the years 1993-2002, inclusive. Our search term contained two groups of keywords: (1) organization design, e.g. terms like division, subsidiary, group, department, and unit and (2) internet, e.g. terms like e-business/commerce, electronic business/commerce, internet, web, online, multimedia, digital, new media, and interactive

Because of the potentially large number of articles that could contain these keywords, the search term limited press releases to those containing at least one keyword from each group in its headline or lead paragraph. After the press releases were collected and organized, three rounds of screening followed. The first round had the objective of screening for relevance: ensuring that the collected press releases did in fact describe the creation, by an established business, of a new organization dedicated to conducting e-business, broadly defined.

Following McWilliams & Seigel (1997), the second round of screening involved eliminating press releases which were confounded by the contemporaneous announcements events such as reports of sales and/or earnings, new product launches unrelated to the newly-founded business units, and all unrelated legal matters.

The third round of screening involved removing all firms from the sample which had not been actively traded for at least a full year prior to the date of the announcement or which had otherwise incomplete stock returns data. These three screens left 373 press releases by 323 firms operating 108 different 4-digit SIC Codes.

After screening was completed, content analysis ensued. Each press was read and coded for the presence of two pieces of information: (1) whether or not the announcement described the creation of a largely autonomous organizational unit and (2) whether or not the announcement stated that the person appointed to lead the unit was a current employee or was recently hired from another organization. In all, two rounds of content analysis were required to reach complete agreement among the authors as to the value of each variable for each announcement. Here are two typical examples of the kinds of statements appearing in the press releases which we used to determine the governance and leadership variables:

Creation of a Decentralized Unit: DAOU Systems, Inc. today announced that it has formed a new eBusiness subsidiary, named Enosus(TM), Inc., to provide end-to-end Internet professional services and solutions to health care and other commercial organizations executing an eBusiness strategy.

Appointment of Outsider(s): To support the continued growth of the Internet division and build new initiatives, VersaTel has also recruited four key senior executives with over 20 years of combined Internet experience, most recently at MCI Worldcom's Internet subsidiary, UUNet.

7.1 Event study methodology

The dependent variable employed in this study was the equally-weighted, market model, cumulative abnormal return over a three trading-day event window: the trading day immediately prior to, the trading of, and the trading day which followed the firm's announcement of its intent to restructure for participation in electronic-commerce related markets and activities.

As has been well-documented, the event study methodology measures the reaction of investors to new information which has the potential to affect the earnings of certain publicly traded firms (Fama, et al 1969; Brown and Warner, 1985). This new information typically, though not always, comes in the form of news reports issued by or on behalf of these companies. The event study methodology is grounded in the efficient market hypothesis, i.e.

that new information about a firm's activities which can materially affect its current and future earnings is evaluated by investors and rapidly reflected in changes to the firm's stock price (McWilliams and Siegel, 1997).

In this study we employ the market model, i.e. one which posits a linear relationship between the return of any stock to the return of a market portfolio (Fama, et al 1969). The market portfolio is used to predict a "normal" return during an event window. The abnormal return is defined as the difference between the actual return and the predicted or "normal" return. The event window in this study is defined as the three-day period extending from the trading day prior to the announcement date through the first trading day after it.

Market model returns for all firms in this study were obtained by using the Eventus ® event study software via the Wharton Research Data Services website. Eventus performs event studies with data contained in the Center for Research in Security Prices (CRSP) stock databases. Eventus output includes both the cumulative abnormal return (CAR), as well as the CAR standardized by firm, over any user-defined event window. Because we are mostly concerned with how returns differ *across* design options and not just whether they are significantly positive or negative, we undertake a cross-sectional analysis of these returns, via multiple regression analysis. Doing so affords us the ability to explicitly control for determinants of the abnormal returns, something that simple tests of significance would not allow.

And since our hypotheses concern the variance of returns, we employ Multiplicative Heteroscedastic (MH) regression, also known as variance decomposition (Weesie, 1998; Greene, 2003). MH regression allows simultaneous estimation of both the expected value and the variance of the dependent variable using maximum likelihood methods, something that ordinary least squares (OLS) regression does not permit. MH regression extends the standard linear regression of the expected value of a dependent variable to include a log-linear model of the heteroscedasticity in the dependent variable relative to each independent variable. Thus, like OLS, an MH regression assesses the impact of an independent variable on the expected value of the dependent variable. Unlike OLS, it also assesses whether the data points move closer to or further from the regression line as the independent variable changes. MH regression has seen use in several studies of the impact of organizational learning on firm performance (e.g. Sorenson & Sorensen, 2001; Sorensen, 2002; Hunter, 2003).

Table 7.2 contains descriptive statistics and the correlation matrix of several potential predictors of the cross-sectional variance in cumulative abnormal returns.

That none of the five (5) firm-level variables – announcement year; log of sales, quick ratio, capital intensity, and yearly close price- were

significantly correlated with abnormal returns is consistent with the strong form of the efficient market hypothesis which states that all public information is already calculated into the stock's price and, hence, not predictive of abnormal returns. As such, cross-sectional analysis includes only industry fixed effects as controls.

Table 7-2. Descriptive statistics and correlations

	Mean	SD	1	2	3	4	5	6	7	8
(1)										
Cumulative Abnormal Returns Standardized	2.21	10.5	---							
Cumulative Abnormal Returns	.29	1.33	.854***							
(3)										
Centralized	.63	.48	-.049	-.091 [#]						
(4) Insider	.83	.37	-.001	.001	.000					
(5) Log (Sales)	2.61	1.24	-.062	-.057	.001	.124*				
(6) Log (Quick Ratio)	.16	.36	.145*	.174**	.066	-.027	-.315***			
(7) Log (Capital Intensity)	.30	.30	-.052	.041	.039	-.019	-.278***	.290***		
(8) Log (Yearly Close Price)	1.16	.59	.019	.025	-.035	.022	.643***	.115 [#]	.057	
(9) Year of Announcement	1998.4	1.88	-.013	-.022	-.086	-.017	-.019	-.129*	.030	-.238***

Legend: # $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, All two-sided tests

8. RESULTS

The first hypothesis, which posited that the three-day CAR associated with the creation of the organizational units in question would be positive, is strongly supported. The CAR for the 373 events averaged 2.22% ($z = 5.76$, $p < 0.0001$, 1-tailed test). The ratio of positive to negative returns was 203:170 and is highly significant ($z = 3.26$, $p < 0.001$, 1-tailed generalized sign test). Figure 1 provides the average returns for all 373 events over a period extending 30 trading days prior to and 30 days following the events' announcement dates (day 0).

Several things about this graph are noteworthy. First, while there is clearly a build up in the mean CAR in the trading days leading up the event announcement, the two day with the highest-absolute values and statistical significance are days -1 (CAR = 0.90%, $z = 3.57$), and 0 (CAR = 1.70%, $z = 6.55$) i.e. the trading just prior to and the trading prior to the announcement of the creation of the organizational unit. This suggests that the market responded positively to the announcements.

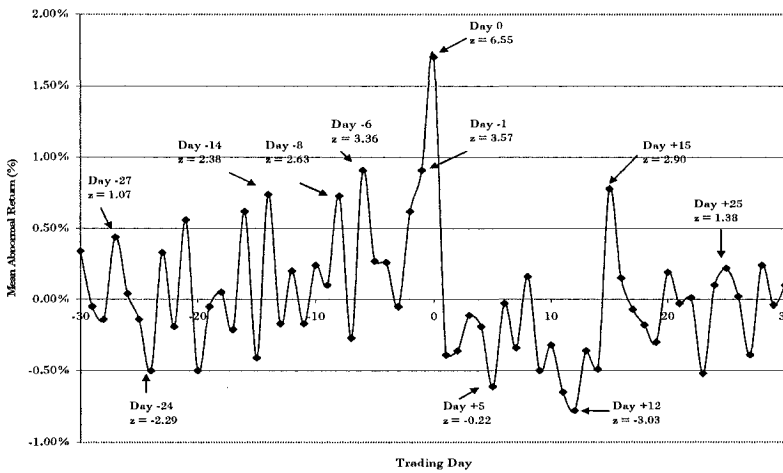


Figure 7-1. Mean Abnormal Returns for all 373 Events Beginning 30 Trading Days Prior to the Announcement Date and Extending for 30 Days Afterwards

Second, returns in the 29 trading days before the event window were significantly higher than those in the 29 days which followed ($p < 0.005$, 2-tailed test). A significantly higher and rising pattern of returns prior to an announcement indicates that the event may have been partially anticipated.

Table 7.3 contains the results of the MH regression analyses conducted in the test of hypotheses 2-5, respectively. In the first equation the dependent variable, 3-day standardized cumulative abnormal returns, is an industry and year fixed effects model. It includes a total of 14 categorical variables used as dependent variables. Eight of these dummy variables are for the eight years 1995-2002. Events announced prior to 1995 serve as the comparison

group. Six additional dummy variables were also specified, one for each of the first seven, 1-digit standard industrial classification (SIC) codes represented in the data set, with a seventh SIC code serving as the comparison group. The model uses 28 degrees of freedom because the fourteen variables appear in both the mean and the variance estimation portions of the MH regression model. The chi-square for this baseline model equals 48.8, which is significant at the $p < 0.01$ level.

Model 2, which pertains to hypotheses 2 and 3, adds the governance and leadership variables. These results suggest strong support for the second hypothesis which proposed that the creation of relatively more centralized business units would be associated with lower variance in abnormal returns ($\mu = -0.656$, $z = -4.05$, $p < 0.001$, 1-sided test).

Similarly, we also find strong support for Hypothesis 3 which proposed that the choice of an “outsider” would also associated be with lower variance ($\mu = -0.853$, $z = -4.34$, $p < 0.001$).

The fourth hypothesis focused on whether pure exploration and pure exploitation occupied opposite ends of the performance variance continuum—exploration the higher end and exploitation the lower. In our models, this hypothesis is confirmed if it can be shown that two conditions are met— that the coefficient on the pure exploration variable is positive and significant and the pure exploitation variable is negative and significant when mixed types are used as the comparison group. As shown in Model 3 of the Table 7.3, the results are strongly supportive of this hypothesis. As expected, the coefficient on the pure exploration variable is positive and highly significant ($\mu = 0.554$, $z = 3.24$, $p < 0.001$, one-sided test⁴). Also as expected, the coefficient on the pure exploitation variable is negative and highly significant ($\mu = -1.160$, $z = -4.65$, $p < 0.001$).

Hypotheses 5a and 5b concern the question of which positions on the performance variance continuum are occupied by the two mixed types. The former posited that the decentralized-outsider combination would have higher variance while the latter posited that centralized, outsider-led organizations would have higher variance.

As can be observed from Models 4 and 5 of Table 7.3, it is clear that H5a is supported. The coefficients in Model 4, where pure exploitation business units, i.e. centralized and outsider-led, are the comparison group, the coefficients on the three other combinations are positive and significant. More importantly, the coefficient for the decentralized, outsider-led mixed type ($\mu = 1.211$, $z = 3.19$, $p < 0.001$) is larger than the coefficient for the other mixed type ($\mu = 1.156$, $z = 4.59$, $p < 0.001$). Model 5 of Table 2 also

⁴ All results are 1-sided test unless stated otherwise.

supports H5a, although it does so from the opposite direction. Here we have the pure exploration organizations as the comparison group. The coefficients on the other three types are negative, significant, and most importantly in the same relative positions.

Table 7-3. Multiplicative Heteroscedastic Regression of Learning-Related Independent Variables on Standardized Cumulative Abnormal Returns

	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>
		(H2, H3)	(H4)	(H5a)	(H5b)
<i>MEAN PANEL</i>					
<i>Governance = Centralized</i>		-0.172 (-1.20)			
<i>Leadership = Outsider</i>		0.022 (0.18)			
<i>Pure Type: Exploration = (Decentralized + Insider)</i>			0.148 (0.91)	0.144 (0.178)	
<i>Mixed Type: (Decent + Outsider)</i>				0.157 (0.57)	0.013 (0.04)
<i>Mixed Type: (Cent + Insider)</i>				-0.034 (-0.26)	-0.178 (-1.08)
<i>Pure Type: Exploitation = (Centralized + Outsider)</i>			0.014 (0.11)		-0.144 (-0.78)
<i>Industry & Year Fixed Effects</i>	Yes	Yes	Yes	Yes	Yes
<i>VARIANCE PANEL</i>					
<i>Governance = Centralized</i>		-0.656*** (-4.05)			
<i>Leadership = Outsider</i>		-0.853*** (-4.34)			
<i>Pure Type: Exploration = (Decentralized + Insider)</i>			0.554*** (3.24)	1.721*** (6.26)	
<i>Mixed Type: (Decent + Outsider)</i>				1.211*** (3.19)	-0.509# (-1.54)
<i>Mixed Type: (Cent + Insider)</i>				1.156*** (4.59)	-0.565*** (-3.22)
<i>Pure Type: Exploitation = (Centralized + Outsider)</i>			-1.160*** (-4.65)		-1.721*** (-6.26)
<i>Industry and Year Dummies</i>	Yes	Yes	Yes	Yes	Yes
N	373	373	373	373	373
Df	28	32	32	34	34
Model χ^2	48.8**	76.7***	78.1***	78.6***	78.6***
change in df	---	4	4	6	6
Change in Model χ^2	---	27.9***	29.3***	29.8***	29.8***
Pseudo R ²	3.8%	6.0%	6.1%	6.2%	6.2%
VWLS R ²	9.9%	12.7%	14.1%	13.9%	13.9%

Legend: # p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001 All one-sided tests.

The coefficient on the decentralized, outsider-led organization variable is significantly lower than the comparison group, though only marginally so,

indicating that it has less variance ($\mu = -0.509$, $z = 1.54$, $p < 0.10$). The other mixed type, centralized and insider-led, has even more significantly lower variance in its returns ($\mu = -0.565$, $z = -3.22$, $p < 0.001$). Taken together then, these two models make clear that the high end of the variance continuum is occupied by the two decentralized combinations- decentralized with insiders (pure exploration) has the most variance and decentralized with outsiders has the second highest. This suggests that the decentralization choice dominates the leadership choice even though both are significant individually and in their own right.

9. INFORMING THE THEORY OF ORGANIZATIONAL DESIGN

The need for “balance” between the goals of exploration and exploitation is a key concept in contemporary organization studies. However, the specific mechanisms and limiting conditions are not as well understood or articulated. From an organization design perspective, recent work suggests that a balanced configuration of design elements will lead to improved performance. Our results indicate understanding this question requires careful consideration of what is meant by both “balance” and by performance. For example, one finding showed significantly lower variance in returns for the centralized, outsider-lead unit. From our reading of the press accounts and the theory, this finding may be explained from the task that the leaders were asked to perform. E-commerce represented a new endeavor for many, if not most, of the firms launching these new businesses. In many cases the outsider hired to lead the effort was someone with experience in e-commerce from other firms. Indeed, “recent knowledge can enhance a firm’s ability to expand to new technological areas” (Katila, 2002: 995). But had it not been for our focus on the variance in performance, rather than its mean, we would not only would have had inconclusive results (there were after all, no mean differences in any of our hypothesis tests, only differences in variance) we would not have ever seen the link between these design choices and performance in a volatile environment. That link, as we see it, is that both greater centralization and an experienced outsider, are means for reducing or moderating the variance in performance that inevitably results from the creation of a new business unit, especially in a highly volatile environment.

Perhaps this result should not be surprising. While the decision to hire a high-potential outsider and then constrain their activities by keeping the unit closely controlled by senior management does not, *a priori*, seem like a better option, it may be the case that tighter organizational control enhances

the degree to which the new capabilities brought in by the outsider can be diffused throughout the organization. What these results demonstrate is that although there is no one best way to organize, there are differential returns to different approaches.

Finally, let us again underscore that this paper investigates the question of balance in organization design in what we believe is a novel manner. We use a measure of performance not typically considered by organization design theorists- the market reaction to firm's announcement of new business units focused on e-commerce. We find considerable variation in that measure – a fact which on its face indicates that all such announcements were not greeted with the same degree of enthusiasm. Perhaps the most novel aspect of our approach is our attention on the *variance* in our chosen measure of firm performance rather than the *mean*. The decision to focus on variance stems directly from our reading of March's theory of organizational learning, a theory which we believe is, at its core, a theory about the relationship between firm performance and actions taken by the firm to increase and/or reduce variation in the organizational processes that underlie firm performance. In light of our reading of the theory and its application in this study, we come to see some of the extant literature on organization design and firm performance in a new light. In particular, we now see that it is possible to see organization design choices, e.g. the choice between a centralization and decentralization as choices between the need or desire of a firm to decrease or increase variation in the organizational processes, either of which can contribute to a higher mean level of firm performance, albeit by different means.

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Chapter 8

NEW DEVELOPMENTS IN CONTINGENCY FIT THEORY

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Abstract: The profile deviation perspective on fit (Venkatraman 1989; Drazin & Van de Ven 1985; Donaldson 2001) has been used frequently in organization design to investigate how design affects performance. Because most studies have opted for empirical profiles, its theoretical underpinnings are underdeveloped. This, in turn, may lead research to underestimate the true impact from organization design on performance. In order to address such shortcomings, we use the information ‘processing view’ (Galbraith 1973, Tushman & Nadler 1978; Burton & Obel 2004) to develop a theoretical profile. We then use this profile to consider how three currently unresolved issues concerning external vs. internal misfits, the relative importance of different misfits and asymmetric misfits may be understood and tested in terms of the profile deviation perspective.

Key words: Fit, contingency theory, new developments.

1. INTRODUCTION

Contingency frameworks and the notion of fit are experiencing a revival (Nadler & Tushman 1997; Zajac et al. 2000; Siggelkow 2001; Russo & Harrison 2005). The fit concept lies at the heart of organization design (Drazin & Van de Ven 1985; Donaldson 1996). While a number of different conceptualizations of fit have been suggested (Drazin & Van de Ven 1985; Venkatraman 1989; Donaldson 2001), research has argued in favour of specifying fit as “profile deviation” (Venkatraman & Prescott 1990:1) or “pattern analysis” (Drazin & Van de Ven 1985). However, for reasons mentioned below, we believe that the potential of this frequently used

approach for understanding and explaining the performance implications of fit design has not yet been fully realized because of insufficient theoretical development.

The critical issue of the profile deviation approach is thus to understand exactly what constitutes a fit profile, and why and how deviations from it affect performance negatively. As such, deviations from the fit profile is a special case of the more general issue of how to measure deviations from the fit line within the Cartesian approach, which Donaldson discusses at length in his chapter. The profile deviation approach specifies a profile in terms of a set of structural dimensions that are appropriate for a particular environment (Venkatraman 1989:434). E.g., a profile consisting of a simple configuration, low complexity, high formalization, and high centralization is an ideal profile for an environment which is low on equivocality, complexity and uncertainty. The understanding of what specifies a profile and, especially, why this is so, can only be granted theoretically. Unfortunately, the profiles which have been used in this popular approach to fit have mainly been developed empirically, i.e. using a calibration sample consisting of the high-performing organizations in the sample (Venkatraman 1989:435).

This inductive approach to establishing the “ideal” (Drazin & Van de Ven 1985:522) profile seems unfortunate, because it may in several ways severely limit the potential of the profile deviation approach to fit. First, the profiles of the high performing organizations in the calibration sample may well be less than ideal or optimal; if this is the case, the empirical results will accordingly underestimate the negative performance implications from misfits, i.e. deviations from the ideal profile. Second, deviations from the ideal profile and how they affect performance can logically be measured in a very large number of different ways, and we have identified three issues where current research lacks sufficient theoretical underpinning: 1) How should deviations from the internal and external elements of the profile be measured and aggregated to establish the overall deviation from the profile? 2) Are all the elements of a profile, and hence their deviations, equally important for performance, or are some more critical than others? And, 3): How do different directions, i.e. deviations to the left or to the right from the ideal profile, affect performance? It is important to develop theoretical answers to these questions and implement these in (more complex) corresponding statistical models, because otherwise empirical testing may underestimate the negative impact on performance from flawed design.

The objective of this article is to address these three limitations inherent in the prevailing empirical approach to the profile deviation model of fit. To meet our objective, we develop a theoretically ideal profile and present corresponding theoretical arguments for how and why deviations from it are expected to affect performance, and how they may be measured accordingly.

Our approach originates directly from the IP view on organization design (March & Simon 1958; Galbraith 1973; Tushman & Nadler 1978; Burton & Obel 2004).

Reflecting our objective, the chapter proceeds as follows. First, in section two, we present an information processing (below: IP) model of organization design which is consistent with the profile deviation approach to fit. In section three, we utilize the model to discuss how internal and external deviations, i.e. misfits, should be measured and how they affect performance, and why this is so. In section four, we discuss how the relative importance of individual misfits affect misfit and performance overall, and the reason for this. Section five discusses how the direction of profile deviations, or misfits, have differential performance effects, and why this is the case. In each of the three misfit discussions just mentioned, we offer a more formal expression of how these misfits might be measured in statistical terms. These expressions should not be thought of as hypotheses, but rather as clarifications which can be compared directly with statistical models used in existing research (and to which we refer in the discussions). In section six, we conclude our discussions and their implication for future research. Finally, in section seven, we discuss how the chapter informs the theory and practice of Organization Design (below: OD).

2. AN IP MODEL OF THE PROFILE DEVIATION PERSPECTIVE ON DESIGN

It has been argued – and successfully tested – that the profile deviation perspective reflects best the theoretical proposition of performance effects from co-alignment (Venkatraman 1989:434; Venkatraman & Prescott 1990), and the perspective is indeed popular in both the strategy and the organization design research.

In the profile deviation perspective, fit is the degree of adherence to an externally specified profile, and is akin to Van de Ven and Drazin's (1985) usage of pattern analysis (Venkatraman 1989:433). A critical issue in this conceptualization is developing the ideal profile (Venkatraman 1989:434), which can be developed either empirically or theoretically. However, research has almost exclusively opted for empirically developed profiles (Drazin & Van de Ven 1985; Venkatraman & Prescott 1990; Miller 1991; Zajac et al. 2000; Bergeron et al. 2001); only Naman & Slevin (1993), in their study of entrepreneurship and the concept of fit, opted for a theoretical profile.

As we discussed in the previous section, the use of theoretically derived profiles may increase the potential of the profile deviation perspective for

explaining and understanding the effects of co-alignment. For this purpose, we present such a theoretical model in table 8.1 below. The model is based on Van de Ven et al. (1976), Galbraith (1977), Naman & Slevin (1993), and Burton & Obel (2002).

The model in table 8.1 consists of two fundamental dimensions, IP demand and IP capacity. Thus the model reflects the basic design problem in the IP view, which is to create an organizational design that matches the demand for IP to the IP capacity (Burton & Obel 2004:7). For the sake of simplicity, we assume that IP demand is caused by environmental uncertainty. We have used Burton et al.'s (2002) conceptualization of the environment, consisting of the three dimensions equivocality, complexity and uncertainty.

IP capacity is provided by coordination mechanisms (March & Simon 1958; Galbraith 1977). Several mechanisms exist, but again, for the sake of simplicity we have chosen Burton et al.'s (2002) four structural dimensions of configuration, complexity, formalization, and centralization. We have classified these mechanisms in terms of their IP capacity, from low to high.

In the model, a fit – or ideal – profile is conceptualized as a profile of coordination mechanisms on classified uncertainty showing the extent to which coordination mechanisms are used (Galbraith 1977:54; Van de Ven et al. 1976). E.g., in table 8.1 below, if the classified environmental uncertainty is low, then a fit profile – showing the extent to which the coordination mechanisms should be used – is a simple configuration with low complexity, high formalization and high centralization. Thus, every organization maintains a repertoire as indicated by the profile, and the profile is a function of task uncertainty (Galbraith 1977:54).

The model in table 8.1 clearly reflects the profile deviation perspective (Drazin & Van de Ven 1985; Venkatraman 1989; Naman & Slevin 1993) on fit. In this perspective, a misfit is present when a design deviates from the specified ideal profile. The extent of such a misfit is measured as the difference between the desired (according to the fit profile as discussed above) and the actual extent to which a coordination mechanism is used.

Thus the model below constitutes a theoretical approach to profile deviation, that is, specifies the profile along a set of dimensions that are appropriate for a particular environment (Venkatraman 1989:434). Venkatraman argued, that although the theoretical approach is intuitively appealing, the operational task of developing such a profile with numerical scores along a set of dimensions is difficult (1989:434-35). To overcome these difficulties, the model in table 8.1 uses the dimensions developed in the Burton, Lauridsen & Obel's (2002) study on Return On Assets loss from multiple misfits.

The IP view on organization has strengths not shared by others, because it constitutes a cohesive analytic framework which is quite clear about specifying to what the structure of the organization is adapting (Schoonhoven 1981:354). In the next three sections, we will utilize this analytic framework to discuss how deviations from ideal profiles should be conceptualized and measured, and why this is so.

Table 8-1. A model of IP demand and IP capacity

IP DEMAND	LOW					HIGH
<i>Environmental:</i>						
- <i>equivocality</i>						
- <i>complexity</i>	Low	Medium			High	
- <i>uncertainty</i>						
IP CAPACITY	LOW					HIGH
(Coordination mechanisms)						
<i>Configuration</i>	Simple	Functional	Divisional	Project	Matrix	
<i>Complexity</i>	Low	Medium			High	
<i>Formalization</i>	High	Medium			Low	
<i>Centralization</i>	High	Medium			Low	

3. EXTERNAL VS. INTERNAL MISFITS AND PERFORMANCE

The first issue we address lies within the domain of multiple fit models. Fit naturally clusters around two domains, internal and external fit (Venkatraman & Camillus 1984). While individual internal and external fit relationships are well researched, the question as to how the two domains relate to each other to achieve overall fit remains unresolved. In this section, we will use the IP view to derive the expected relationship between internal and external fit, and we will use the profile deviation approach to discuss how the two domains of fit could be modeled.

3.1 Review

Research has continually proposed that both internal and external fit matter for performance (Katz & Kahn 1966; Thompson 1967; Hofer & Schendel 1978; Venkatraman & Camillus 1984; Tushman & Romanelli 1985; Huselid 1995; Burton & Obel 2004).

It is, however, very unclear how internal and external fit relate to each other, and the matter remains an unresolved issue in organization design.

In the contingency approach to organization design, the basic tenet seems to be that efficient organizations should be both internally and externally fit, or both differentiated and integrated, simultaneously (Burns & Stalker 1961; Thompson 1967; Galbraith 1977). However, while much empirical work supports the individual fit relationships involved with internal and external fit, there is little empirical support for the simultaneous presence of internal and external fit (Gates & Egelhoff 1986; Huselid 1995; Burton & Obel 2002), even if the theoretical arguments remain compelling (Huselid 1995:667).

Strategy research has suggested that external fit is more important than internal fit in fast changing environments (Gates & Egelhoff 1986; Knoll & Jarvenpaa 1994), but the suggestion has not been tested empirically on performance.

Miller (1992) argues in a study that the contingency theory idea of simultaneous internal and external fit is altogether wrong, at least under certain circumstances, because incompatibilities exist between them. He finds that organizations that achieve the best external fit have the poorest internal fit, and the reason for this may be that external fit requires numerous changes that eradicate complementarities between structure and process (1992:175), i.e. internal fit.

Rather than distinguishing between dynamic and stable environments, Siggelkow (2001) characterizes environments by their impacts on internal and external fit. Concerning differentiation between fit-conserving, benign fit-destroying and detrimental fit-destroying changes, Siggelkow advances the idea that there may be internal and external trade-offs. This is interesting, because it points to the need for differentiating between the detrimental consequences of preserving internal fit to the benefit of external fit. His study points to the necessity of recognizing the mutual interdependence between both types of fit.

From a normative organization design point of view, the poor understanding of how internal and external fit interact to influence performance is unsatisfactory. We expect that fit models integrating individual, bivariate internal and external fit relationships will better realize the potential of organization design to explain organization performance, than will simple bivariate models; multistructural concepts of fit more fully reflect the underlying fit notion and therefore have to be welcomed (Donaldson 1996:69)

To overcome some of the shortcomings from which existing models of internal and external fit apparently suffer, we discuss next an IP model of internal and external fit, and how it may be measured and statistically related to performance.

3.2 An IP model of external and internal misfit

In the figures 8.2 to 8.4 below, we present an IP model of external and internal fit. It departs directly from the IP model which we presented earlier in table 8.1.

Thus, in figure 8.2 below, we have illustrated a design which is externally and internally fit. With grey shadings, the figure highlights a situation where the classified environmental uncertainty, i.e. IP demand, is low. The corresponding fit profile, i.e. IP capacity, is a simple configuration with low complexity, high formalization and high centralization, as we already discussed this profile when we first introduced the model in table 8.1.

In figure 8.3 below, IP demand is medium, while the profiled IP capacity is low. This design represents an external misfit, because it has too little IP capacity for the required IP demand (Galbraith 1977; Tushman & Nadler 1978; Burton & Obel 2004). The misfit will result in reduced performance, because with too little IP capacity the organization will not possess the information necessary to complete its tasks, and therefore its goal performance will be reduced (Galbraith 1977:37; Tushman & Nadler 1978:619). If the extent of misfit were to be measured statistically, it would be done by measuring the Euclidean distances between IP demand and each of the respective coordination mechanisms (i.e., configuration, complexity, formalization, and centralization). This approach complies with the profile deviation approach (Drazin & Van de Ven 1985; Venkatraman 1989; Naman & Slevin 1993), as we discussed it earlier. At the same time, the design in figure 2b below is internally consistent, or fit; each of the individual IP mechanisms fits in with all the other mechanisms. In terms of measuring internal fit, there are no internal deviations from the simple configuration, low complexity, high formalization, and high centralization profile, which represent a fit combination, or ideal internal profile, of IP mechanisms. Thus, the extent of misfit, measured as the Euclidean distances between each of the respective coordination mechanisms, is zero.

In figure 8.4, the illustrated design is both externally and internally misfit. It is in external misfit because one of the four coordination mechanisms (centralization) is too low in capacity to meet the demand. An organization uses all mechanisms of coordination. They are added to the organization's repertoire rather than substituted for other mechanisms (Galbraith 1977: 53-54), and in the next section we will present more detailed IP arguments for the reason why substitution is limited. At the same time, the design profile in figure 8.4 is also internally misfit; there is an internal mis-match between the individual capacities of the four coordination

mechanisms. The increase of the IP capacity comes from increasing costs (Arrow 1974; Tushman & Nadler 1978: 618).

Table 8-2. A design profile in External and Internal fit

IP DEMAND	LOW					HIGH
<i>Environmental:</i>						
- equivocality						
- complexity						
- uncertainty						
IP CAPACITY	LOW					HIGH
Configuration	Simple	Functional	Divisional	Project	Matrix	
Complexity	Low		Medium		High	
Formalization	High		Medium		Low	
Centralization	High		Medium		Low	

Table 8-3. A design profile in Internal fit but External misfit

IP DEMAND	LOW					HIGH
<i>Environmental:</i>						
- equivocality						
- complexity						
- uncertainty						
IP CAPACITY	LOW					HIGH
Configuration	Simple	Functional	Divisional	Project	Matrix	
Complexity	Low		Medium		High	
Formalization	High		Medium		Low	
Centralization	High		Medium		Low	

Table 8-4. A design profile in External and Internal misfit

IP DEMAND	LOW					HIGH
<i>Environmental:</i>						
- equivocality						
- complexity						
- uncertainty						
IP CAPACITY	LOW					HIGH
Configuration	Simple	Functional	Divisional	Project	Matrix	
Complexity	Low		Medium		High	
Formalization	High		Medium		Low	
Centralization	High		Medium		Low	

In figure 8.4, the increased IP capacities of the matrix configuration, medium complexity and medium formalization increase the IP costs, without reaping much benefit in terms of increased task information, because overall the IP capacity it still limited by the too low capacity of the remaining coordination mechanism (high centralization). Thus the output (IP capacity) of the design in figure 8.4, compared to figure 8.3, is unchanged while the

input (IP costs) is increased, leading to a reduction in internal efficiency. Because of this reduction in internal IP efficiency, the design in figure 8.4 will result in poorer performance, *ceteris paribus*, than that of figure 8.3.

Thus an IP analysis of external and internal fit suggests that both external and internal fit matters for performance; however, external fit is expected to matter more, because external fit relates to the output of IP, which is reduced uncertainty, or, which is all the same, information (Galbraith 1977:38). External misfit implies that too little information about the task is being processed, which will reduce goal performance. Internal fit, on the other hand, relates to the input of IP. The presence of internal misfits implies excessive IP costs; while these excessive costs do not influence the goal performance of the organization, they do influence the internal efficiencies of the organization. The notion that both goal performance and internal efficiencies influence overall performance, but that goal performance is more important than internal efficiency, is widely acknowledged (Barnard 1938; Katz & Kahn 1966; Hofer & Schendel 1978; Tushman & Romanelli 1985; Huselid 1995; Burton & Obel 2004), even if the empirical evidence is, at best, weak (Gates & Egelhoff 1986; Huselid 1995; Burton et al. 2002).

To clarify how misfit in the model just presented is conceptually different from existing conceptualizations, let us consider how our conceptualization might be measured statistically. Here, external misfit is measured as the difference (i.e. the Euclidean distance) between IP demand and each of the IP capacity mechanisms. An internal misfit is measured as the difference between any pair of IP capacity mechanisms. In accordance with the profile deviation approach, the relationship between misfit and performance may then be expressed as:

Performance loss =

$$a * \sum | \text{external misfit}_i | + (1 - a) * \sum | \text{internal misfit}_j | ; a >> (1 - a)$$

To claim empirical support for the hypothesis that external misfit is more detrimental to performance than internal misfit, factor *a* must be significantly larger than the factor (1-*a*).

4. CRITICAL MISFITS AND PERFORMANCE

The relative importance of different uncertainties and the relative costs of offsetting or eliminating or avoiding them are matters to be estimated (Thompson 1967:162). While different uncertainties, or misfits, have so far been estimated to be equally important in aggregated misfit models, we

suggest that this is not the case. Rather, critical misfits exist which, if fixed, will increase the complex organization's performance dramatically. Since achieving a state of total fit remains an elusive ideal in today's environment (Burton & Obel 2004:399), we think that a prioritized, approach to fixing critical misfits promises well; but how are critical misfits identified?

4.1 Review

As we have discussed earlier, a misfit is present in the profile deviation perspective if the value of an IP mechanism deviates from its "ideal" (Drazin & Van de Ven 1985) or "desired" (Naman & Slevin 1993) value. The size of the deviation, or the misfit, is calculated as a Euclidean distance in accordance with the Cartesian approach to measuring misfit, which Donaldson discusses in more depth in his chapter on challenges and opportunities in the contingency theory of organizational design.

The multiple misfits can now be combined by adding them together to produce the total effect on performance (Donaldson 2001:213). This has been done in different ways. Some researchers have used the simplest possible approach, by adding the individual misfits to yield overall misfit (Drazin & Van de Ven 1985; Naman & Slevin 1993; Zajac et al 2001). The overall misfit is then correlated with performance, i.e.:

$$\text{Performance loss} = \sum |\text{misfit}_i|$$

If we think about this model in terms of how misfits should be fixed, then it suggests that there will be a trivial, direct proportional relationship between fixing any one individual misfit to any degree and performance improvement. This is so because the model assumes that the individual misfits are equally important for performance (since their correlation coefficients are not weighed), and the individual misfit relationships with performance are linear. We have tried to illustrate this in figure 8.1 below. In the figure, the x-axis should be thought of as a function of both the number and the size of individual misfits (remembering that we are trying to illustrate how to fix n misfits which make up a n -dimensional space), while the y-axis represents performance loss from multi misfit. In the figure, "1: Simple summation" is represented by the positively sloped, straight line. The line illustrates the relationship between fixing misfits and performance, as just discussed.

Multiple misfits have also been combined by adding, not the size of the individual misfits, but the square of the individual distances (Venkatraman & Prescott 1990; Miller 1991; Miller 1992); i.e.:

$$\text{Performance loss} = \sum_i |\text{misfit}_i|^2$$

Theoretically, this procedure implies that larger misfits relate disproportionately to performance (Naman & Slevin 1993:140). If we think of this model in terms of how misfits should be fixed, it implies that the best pay-off (in terms of performance loss reduction) from fixing misfits is achieved by beginning with fixing the largest individual misfit (since correlation coefficients are not weighed). In figure 8.1 below, we have illustrated this with the curve “2: Summation of squares”.

Both of the above models are consistent with a “postulated independence of specific fits between specific pairs of components” (Naman & Slevin 1993:140). More recently, however, the assumption of independence has been challenged, and a completely different relationship between overall fit and performance has been suggested. The results from an empirical test, in which neither the type of misfit nor the number of misfits seemed to matter (Burton & Obel 2002:1479), lead them to suggest that misfits are interdependent. Based on the NK model (Kaufmann 1993) and its application in organization theory (Levinthal 1997; Rivkin 2000), Burton & Obel (2002) suggest that small changes, i.e. the presence of only a single misfit, in a tightly coupled system can cause serious losses in the performance of the whole system; in other words, to avoid performance losses, the design of the system must be “perfect” (Burton & Obel 2002:1480). If we think about the NK model in terms of fixing misfits, it means that fixing less than all misfits will have little or no positive effect on performance; only when all misfits are fixed, performance will improve in an abrupt and substantial manner. We have illustrated this approach to fixing misfits in figure 8.1 below as “3: NK model”.

It should be apparent from our brief discussion, as we illustrated it in figure 8.1, that the conceptual foundation for multiple fit models has far reaching normative implications. Theoretical understanding is prerequisite for being normative; unfortunately, different approaches, such as those presented above, are frequently used “without suggesting any explicit reasons” (Naman & Slevin 1993:141). Next, based on IP arguments, we will develop a multiple fit model for explicit reasons and briefly discuss the way in which this model can be measured and discuss the possible implications for the ways to fix misfits.

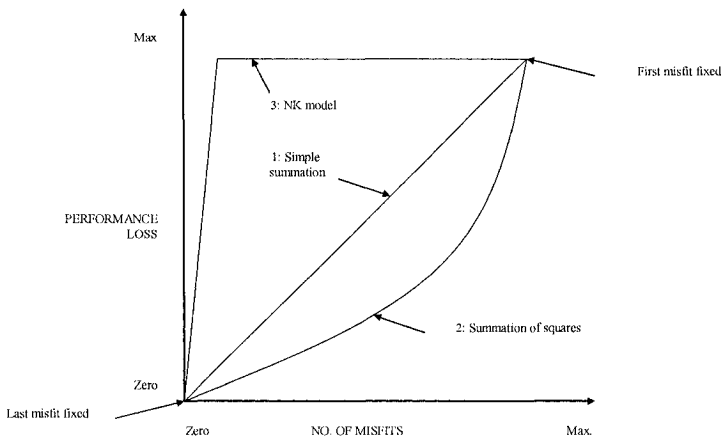


Figure 8-1. The effect on performance loss reduction from an optimal, sequential approach to fixing misfits assumed in three different aggregated misfit models

4.2 An information processing view of critical misfits

IP involves a process, as the term indicates. From a multiple fit perspective, the fundamental theoretical questions then being “what”, “why” and “how” (Whetten 1989), the overall capacity of this process is determined. We need to establish what determines IP capacity because fit is constituted as a match between IP capacity and IP demand, as we discussed when presenting our IP model earlier. Misfit is then measured as a difference between capacity and demand.

Coordination mechanisms are what determine IP capacity (Simon & March 1958; Galbraith 1974; Tushman & Nadler 1978). Two classical examples of such mechanisms are hierarchy and rules (“centralization” and “formalization”, respectively, in our model presented in table 8.1 above). Much work within the IP view has focussed on identifying different mechanisms and their relative costs and benefits (March & Simon 1958; Thompson 1967; Galbraith 1977; Tushman & Nadler 1978; Burton & Obel 2004). Since each mechanism delivers some amount of IP capacity, each

mechanism represents an individual fit, or misfit, relationship. In the presence of multiple mechanisms, how then do they aggregate to determine the overall IP capacity of the organization?

We simply suggest that the overall process capacity is determined, or more precisely, limited, by the capacity of the single most limiting coordination mechanism. In terms of misfit, overall misfit is significantly determined by the size of the single largest misfit, i.e. the difference between the IP capacity of the most limiting mechanism, and the IP demand which the actual organization faces.

In table 8.5 below, we have illustrated a situation which reflects our suggestion. In the figure, the single largest misfit is present at the IP mechanism “complexity”, which is low. Thus, in the figure, overall misfit is significantly determined by the deviation, or difference, between IP demand and the IP capacity determined by complexity.

Why should this be so? Based on empirical observations, Galbraith argues that an organization uses all mechanisms of coordination. They are added to the organization’s repertoire rather than substituted for other mechanisms, although some substitution takes place (1977:53-54). This combination guarantees an integrated coordination response from the organization, both for routine and non-routine situations (1977:44). For example, for well known reasons the hierarchy is an efficient way of handling non-routine IP, while rules are efficient for routine IP (March & Simon 1958). Because of such efficiencies, substitution between them is possible, but at very high costs; it is these costs that limit their substitution in practice. Thus it is possible to handle routine information in the hierarchy, but it is much more expensive than to use formalization and, more importantly, it limits the capacity for handling non-routine even further than the limits already inherent in the hierarchy (Arrow 1974). In the same manner it is also possible to formalize non-routine information, but at very high costs (or, maybe more precisely, with very small benefits). In general, it is exactly because different coordination mechanisms have different costs and benefits (Galbraith 1973; Tushman & Nadler 1978; Burton & Obel 2004) that substitution between them is limited, leading to the expectation that an organization in fit has appropriate levels of IP capacity in each of its multiple mechanisms. In the profile deviation perspective, “appropriate levels” translate into the externally specified profile (Venkatraman 1989:433).

In terms of measuring misfit, we therefore suggest that overall misfit is primarily determined by a critical misfit, which is the single largest individual misfit; the size of this misfit significantly reduces performance accordingly. Because some, although limited, substitution is possible, the presence of other (smaller) misfits add up to cause further but much less

significant performance losses. In terms of a multivariate statistical model, we may express this as:

Performance loss =

$$a * |\text{critical misfit}| + (1 - a) * \sum |\text{misfit}_i|; a \gg 1 - a; \text{Critical misfit} = \max[\text{misfit}_1, \text{misfit}_2, \dots, \text{misfit}_n]$$

Table 8-5. Low Complexity as an example of a critical misfit determining overall IP capacity

IP DEMAND	LOW				HIGH
<i>Environmental:</i>					
- equivocality					
- complexity					
- uncertainty					
IP CAPACITY	LOW				HIGH
<i>Configuration</i>	Simple	Functional	Divisional	Project	Matrix
<i>Complexity</i>	Low		Medium		High
<i>Formalization</i>	High		Medium		Low
<i>Centralization</i>	High		Medium		Low

When thinking about how to fix misfits, we have illustrated the critical misfit model in figure 8.2 below. The figure illustrates the proposed effects on performance from an optimal approach to fixing misfits. This is done by identifying the critical misfit and start by fixing it. This significantly improves performance. Fixing further non-critical misfits will also improve performance, but to a much lesser extent.

Compared to other aggregated misfit models, building upon IP arguments allows us to propose a model which facilitates a “quick and dirty” managerial approach to significantly improve performance, when facing a complex organization with many potential misfits. To utilize this approach the manager has to identify the critical misfit before fixing it. Since a “quick and dirty” approach to fixing misfits implies that managers should search for satisficing rather than optimal organization designs, our discussion of critical misfits is directly related to the discussion of Quasi-Fit in Donaldson’s chapter. When in Quasi-Fit, a structure only partially fits its contingencies. Donaldson argues that bringing the organization’s design into Quasi-Fit may increase its performance which is also what we argue here, based on a conceptual analysis of the IP framework.

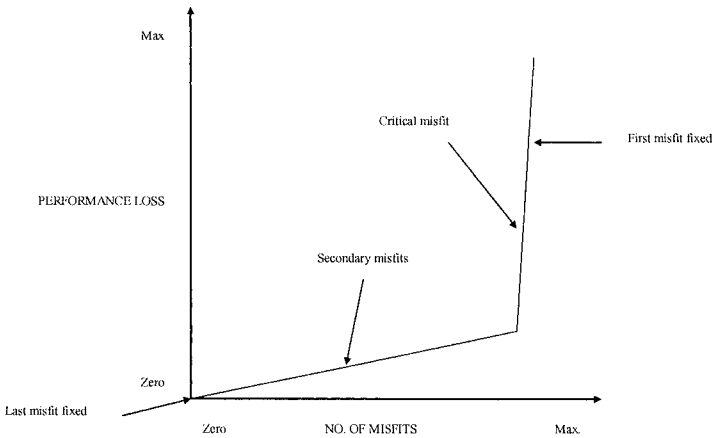


Figure 8-2. The effect on performance loss reduction from an optimal, sequential approach to fixing misfits when critical misfits exist

5. ASYMMETRIC FIT AND PERFORMANCE

As mentioned above, an essential assumption of many contingency models is that high performing organizations are those that match capacity to demand. Another dominant assumption has been that of balance in determining misfits, i.e. the detrimental performance consequences of over-capacity (more complexity than demanded) have been equated with under-capacity (less complexity than demanded).

Recent writings (Naman & Slevin 1993; Zajac et al. 2000) have questioned the validity of this assumption and instead have argued for an asymmetric performance degradation relating to differences between over and under fit. Yet, as argued by Naman and Slevin (1993), there is a lack of conceptual development, making empirical testing of this assumption difficult.

In the following, we build on our IP model presented above, to clarify what constitutes overfit as opposed to underfit, and analyse why underfit is more detrimental to performance than overfit.

In contrast to the issues addressed earlier, the concept of overfit and underfit applies to both bivariate and multiple fit models.

5.1 Literature review

Within the field of strategic management, Zajac et al. (2000) recently developed and tested the argument that insufficient change has more detrimental implications for performance than excessive change (2000:439). They found empirical evidence of an asymmetry between the performance implications of insufficient change and excessive change, with insufficient change emerging as the worse of the two forms of deviations from their contingency model (2000:449). Even though this model was built around the notion of strategic change, this clearly supported the view that underfit is worse than overfit, and hence justified [making] the distinction.

Naman and Slevin (1993) built a normative model which, including the variables of entrepreneurship, organizational structure and mission strategy, determined the firms' fit with its environment. In proposing their model, Naman and Slevin (1993) acknowledged the conceptual difference between under- and overfit. Yet, in their empirical model, Naman and Slevin operated with an absolute value function. Mathematically, this embodies the notion of balance in determining misfits, in that it equates undercapacity with overcapacity. Their absolute value index also assumes that misfit is approximately linearly proportional to performance degradation.

Naman and Slevin (1993:146) suggested that future fit relationships should incorporate a "law of diminishing returns" based on a notion that underfit is worse than overfit. While they thereby pointed to the importance of distinguishing between over- and underfit, they argued that more conceptual work was required in order to do so.

As we indicated in the introduction, we suggest by means of the IP theory that the conceptual distinction between over and under fit is relevant for estimating the full potential of the profile deviation approach, and in the following we build on our IP model to clarify what constitutes overfit as opposed to underfit, and argue that underfit is worse for performance than overfit.

5.2 An IP model of asymmetric fit and performance

In table 8.6 below, we have illustrated a situation where IP demand is medium, while complexity is low and centralization is high.

As it appears in the literature review, most empirical fit studies operate with a balanced fit notion. In the figure below, this would imply that both

types of misfit would be equally detrimental to organizational performance, because the size of the misfits is the same.

In an IP perspective, however, the complexity misfit constitutes an undercapacity in the figure above, while the centralization misfit represents IP overcapacity; even if they are of the same size, their nature, and hence their implications for performance, is different. We build this on the arguments that follow. Galbraith proposed a range of coordination and control mechanisms. Based on these, Tushman and Nadler (1978) constructed a continuum based on cost, complexity and capacity to process information. The higher the complexity, the higher the costs (related to time, effort, and control). Based on this idea, Tushman and Nadler (1978) argued that situations of insufficient IP will lead to less than optimal amount of information. In the case of too much IP capacity, the extra information is redundant and costly in terms of time, effort, and control (619-620). Thus, with overcapacity, the task will be performed at the level of goal performance. But, since the increase of the IP capacity increases costs (Tushman & Nadler 1978:618), with excessive costs. Thus, too much capacity will be redundant and costly; too little capacity will not get the job done (1978:619).

While misfits in previous theory have usually been reduced to be simple balanced misfits, not discriminating between the directions of the misfits, we argue that we need to operate with the assumption that misfits can occur in either direction. I.e. they can be both positive (overfit) and negative (underfit). Moreover, building upon Tushman and Nadler it can be argued that the two types of misfit will be associated with differential performance outcomes. Thus while any misfit causes performance decreases, underfit is worse for performance than overfit.

Table 8-6. A design profile with underfit and overfit

IP DEMAND	LOW				HIGH
<i>Environmental:</i>					
- equivocality					
- complexity					
- uncertainty					
IP CAPACITY	LOW				HIGH
<i>Configuration</i>	Simple	Functional	Divisional	Project	Matrix
<i>Complexity</i>	Low		Medium		High
<i>Formalization</i>	High		Medium		Low
<i>Centralization</i>	High		Medium		Low

To measure misfits in this model, underfit is measured as the difference between IP demand and IP capacity scores that are below the level of IP

demand, or, what comes to the same, deviations to the left of the ideal profile. Overfit is measured as the difference between IP demand and IP capacity scores that are above the level of IP demand, or to the right of the ideal profile. Formally:

Performance loss =

$$a * \sum | \text{underfit}_i | + (1 - a) * \sum | \text{overfit}_j | ; a \gg (1 - a)$$

Thus our model offers a conceptual framework for differentiating between over- and underfit. Making this distinction is important because over- and underfit conceptually distinguish two different ideas, and that underfit has worse performance consequences than overfit. This assumption is conceptually universalistic and applies for all types or domains of fit.

6. INFORMING THE THEORY OF ORGANIZATION DESIGN

An essential assumption of the contingency theory is that misfits are detrimental to organizational performance. Therefore, understanding how misfits impact performance is of central importance to the theory of organization design.

While misfits have been conceptualized in numerous ways (Venkatraman 1989; Van de Ven and Drazin, 1985), research has favoured the profile deviation approach. Within the profile deviation approach, fit is the degree of adherence to a specified ideal profile (Venkatraman 1989). This makes

the measurement of deviations from the ideal profile and how they affect performance a key issue.

The present chapter contributes to the current state of art within the fit research by taking an explicit theoretical stand of IP theory to specify a theoretically anchored ideal profile. Based on this, we are able to identify three key issues, where the potential of the profile deviation model has not been fully realized: These are: 1) external and internal fit, 2) critical misfits and 3) overfit and underfit. Each of these has important implications for explaining how misfits are detrimental to performance.

In terms of internal versus external misfits, our explicit theoretical baseline model enables us to demonstrate that theoretically these are not inconsistent demands, rather they are mutually dependent, and this should be reflected in empirical models. In terms of relating to aggregated models, we demonstrate that from a theoretical point of view there will always be one critical misfit i.e. the single largest misfit that significantly determines the

overall IP capacity of an organization. The implication is that rather than summing misfits in multiple fit models, their relative importance should be considered. Finally, we argue that under and over fit are conceptually distinct. Therefore it is not theoretically consistent to operate with balanced models where the detrimental effects of these two types of misfits are treated equally. Instead, it should be acknowledged that as to fit models underfit is more detrimental than overfit.

The implication for OD is that theories of fit are only incomplete in terms of measuring fit, and that this circumstance needs to be addressed in order to develop sufficiently valid empirical models as well as prescriptive advice from these models. Our chapter contributes to this goal with theoretical clarification related to normative fit models.

7. INFORMING THE PRACTICE OF ORGANIZATION DESIGN

By nature, fit theory is normative, and an essential feature of normative models is that they allow prescriptive recommendations of how to achieve effective design of organizations. Yet, in order to enable accurate prescriptions, it is necessary that underlying theoretical underpinnings are “exact”. This chapter is addressing three particular types of fit: internal versus external; critical misfits, and over- versus underfit, where current state of the art theory is likely to underestimate the true impact on performance from organization design.

The chapter is conceptual, not empirical, and therefore more research is needed to test the actual implications of our conceptual notions. More research is therefore needed to give prescriptive recommendations of how to design organizations. Nevertheless, the chapter holds important implications for practice in that it identifies the importance of capturing and measuring misfits appropriately.

For instance, the notion, that external misfits are more detrimental than internal misfits, would imply that managers, at least in theory, should attend to external misfits before they attend to internal misfits. Similarly, the notion of “critical misfits” explains how managers, constrained by limited cognitive powers, may identify satisficing rather than optimal designs of complex organizations with surprisingly good performance results. Finally, the notion that underfit is more detrimental to organizational performance than overfit would imply that when attending to misfits, managers should give higher priority to situations of underfit than situations of overfit. At the same time, the theoretical model suggests that it might be better to “overshoot the mark” and develop organizations that are more complex than actually needed,

simply because undercapacity has worse consequences for performance than overcapacity.

Certainly, dealing with misfits is not a trivial issue in organizations. As this chapter has demonstrated, it has important implications for our theories how misfits are measured and identified. Therefore, this chapter clearly points to the need for more empirical studies to empirically validate and strengthen current theories, and consequently the prescriptive recommendations that we can derive from these theories.

8. CONCLUSION

This chapter began by arguing that the potential for explaining organizational performance of the frequently used profile deviation perspective on fit could be improved by developing its theoretical underpinnings.

Since the IP view on organization design is particularly clear about what is meant by fit, we used this view to develop a theoretically ideal profile. We then moved on to use the IP view to better understand how deviations from this ideal profile would affect performance, i.e. understand misfits.

In particular, we addressed three misfit issues, which we argued had not been treated to their full potential previously: 1) external and internal fit, 2) critical misfits and 3) overfit and underfit.

By building upon the IP perspective as an explicit theoretical stand, we developed current conceptual notions of fit and demonstrated that the way in which we define and measure misfits has important implications for our theories, and consequently for the prescriptive recommendations we are able to derive from these.

While this chapter takes an explicit theoretical standpoint, future research should empirically test the models presented. For this purpose, we suggested a corresponding statistical model for each of our conceptual models.

As presented here, the three concepts stand out as individual concepts, yet it would be highly relevant to try and integrate them all into an overall, encompassing model.

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Chapter 9

ORGANIZATION DESIGN CONSTRAINTS ON STRATEGY AND PERFORMANCE

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Abstract: This chapter provides an extension and refinement of the information processing model of organization design (Galbraith 1973, Tushman and Nadler 1978). In the paper, I suggest that organization design constrains firms' realized strategy, and thus influences organizational performance: I suggest that the choice of design becomes crucial for performance since organizations may face different functional demands that are determined by environments and strategic intentions, and since organization designs require costly and irreversible commitments.

Key words: Organization design, strategy, performance.

1. INTRODUCTION

Organization designs regulate the information flow in the organization and thereby influence its ability to adapt to changes in the environment and anticipate the consequences of policy changes in the organization. Therefore, the design of the organization is crucial for organizational performance since it influences the organization's ability to act and react effectively.

In this chapter, I propose that the design of the organization provides constraints on the behavior of the organization, specifically its strategic orientation which I refer to as its realized strategy with reference to Mintzberg (1978) and Mintzberg and Waters (1982). I view the organization as an open system in the tradition of Lawrence and Lorsch (1967), Thompson (1967), Galbraith (1973), and Tushman and Nadler (1978). According to this view, organizations gather and use information to make

informed decisions, and the characteristics of the task environment determines the need for information processing (Galbraith 1973, Tushman and Nadler 1978). The realized strategy is the organization's bet on how to adapt to its perceived environment, and the execution depends critically on accurate and timely information. Under some circumstances, namely if different organization designs provide different information and interpretation of information, alternative organization designs support different strategic orientations. Related, organizational effectiveness can be as a multidimensional construct (Gresov and Drazin 1997), and therefore the organization must trade off different strategic orientations if they are supported by alternative, mutually excluding, organization designs.

The contribution of the paper is to provide a causal theory of how the realized strategy is influenced by the design of the organization. The promise of the theory advanced here is to provide the basis for a model (or set of models) whose predictions can be tested empirically, and which separates causes and effects to allow for more complex modeling of organization designs, and their consequences. In particular, the theory I advance here suggests that organization design research can move beyond the simple moderating model in contingency theory (cf. Schoonhoven 1981) or the complex but less formal modal found in configurational approaches (Meyer, Tsui and Hinings 1993). I also expect that the theory I advance can provide a synthesis of the contingency (Donaldson 2001) and configurational (Meyer, Tsui and Hinings 1993) perspectives on design by suggesting a model of design that nests a mediation model within a moderation model.

2. ORGANIZATIONS AS INFORMATION PROCESSING SYSTEMS

Organizations can be described as information systems that are composed of human, structural, and technological elements. The information system enables organizations to reduce uncertainty about their task environment and external environment and therefore make better decisions if the design of the information system's information processing capacity reflects the underlying need for information processing (Galbraith 1973, Tushman and Nadler 1978).

The design of the organizational information system regulates the flow of information in the organization, and therefore information processing can be viewed as an antecedent to the realized strategy of the organization (Cyert and March 1963, Scott 1992 chapter 4). For example, organizations develop procedures and mechanisms for obtaining, interpreting, and communicating information, they delegate responsibility for interpreting and communicating

information, and for making decisions. As organizations develop such structural properties, these may come to influence how issues are framed, what events decision makers judge to be important, and how problems are solved. Since the organization design channels information, it functions as a filter for what the organization happens to perceive, and how the organization acts upon its perception (Miles, Snow and Pfeffer 1974, Leifer and Huber 1977, Normann 1977).

Arrow (1974: 41) argued that the organization design represent an investment in information processing capability, and remarked that: "Once the investment has been made and an information channel acquired, it will be cheaper to keep using it than to invest in new channels... Thus it will be difficult to reverse an initial commitment in the direction in which information is gathered."

If information processing capability in the form of the organization design constitutes a specific and irreversible investment, changes to the organization design are likely to be difficult and costly. Therefore, I advance the hypothesis that the organization design that has been established provides constraints on organizational activities that limit the feasibility of making changes to organizational activities. The choice of organization design, once it has been established, will therefore tend to constrain the current strategy of the company if the effective realization of the company's strategy is supported by a given level and type of information processing capacity. In support, there is some evidence that the frequency of major change in organizations is low, which would support an assertion that design changes are costly and irreversible (cf. Miller and Friesen 1984).

Gresov and Drazin (1997) argued that the level of design constraints organizations face may vary from few to many. But even if there are many ways of designing organizations in a given situation, specific and irreversible investments in organization design changes the situation much like the so called fundamental transformation in transaction cost theory (e.g. Williamson 1985). That is, once the commitment to *a specific design* is made, the choice becomes constraining even if there, a priori, existed multiple design options. The crucial point for the argument made here is that the investments in organization design are assumed to be specific and irreversible. Consistent with the argument put forward by Arrow (1974), I assume that organization designs *are not general purpose instruments but specific instruments for designers even if there are competing designs available a priori*. This can be compared to car design where there are many different ways of designing a fast car. Aston Martin places their engine in the front end while Ferrari places their engine in the center. While each of these designs produce fast cars, the design of the specific car is adapted to

the placement of the engine, and is likely to be costly to change to another engine configuration, since a redesign is required.

Part of the design problem is that an organization design, while often characterized in uni-dimensional terms such as organic and mechanistic, is a multidimensional phenomenon, i.e. a design can be characterized in terms of different underlying design variables such as formalization, centralization, and differentiation. If design variables are co-specialized, greater adaptation costs are likely to be the result since the organizations cannot implement piecemeal changes but need to change whole bundles of design variables. The configurational approaches to organization design assume that design variables are co-specialized so that the organization faces internal design constraints as well as external constraints (Burton and Obel 2004, Meyer, Tsui and Hinings 1993). Therefore, as the organization develops over time, organization designs are likely to become increasingly co-specialized as the organization converges on a distinct model for design (Miller 1993; March 1991).

3. THE EMERGENCE OF DESIGN

Most theories of organization design assume that the design decision an organization faces is of a steady state nature, i.e. the basic conditions the system operates under changes only negligibly over time. Within this framework the choice of organization design becomes similar, at least in spirit, to an exercise of constrained optimization. More realistically, designers are likely to be boundedly rational (Simon 1955), i.e. they have limited cognitive ability and limited information, and therefore their expectations concerning the organization design requirements are likely to be incomplete. In this scenario, designers have to learn by doing, i.e. the organization design at a given time will reflect a learning process. In a dynamic perspective, the organization design is therefore influenced by feedback provided by observation of the performance that follows actions constrained by design (Cyert and March 1963, March 1994). A dynamic causal theory should allow for dynamic adjustment of the organization design as the organization realizes its performance. The matter becomes slightly complex if the decision to change the way the organization operates can be made at the design level (e.g. adjusting design variables) or at the activity level (e.g. changing the strategy of the organization from prospector to defender, cf. Miles and Snow 1978) or for that matter at both levels. I will return to the issue of organization design in a dynamic context later in this chapter.

4. REALIZED STRATEGIES AS A TRADE OFF BETWEEN PERFORMANCE DIMENSIONS

Part of the design problem emerges from expectations concerning the organizations desired and possible performance within an expected environmental context, that is, the designers face functional demands that emerge from the context the organization operates in. Sometimes organizations face several (i.e. more than one) functional demands that represent strategic trade-offs (Gresov and Drazin 1997). Organizations must therefore balance their strategic choices against their perception of the importance of alternative functional demands in order to prosper. Differences in functional demands emerge because there are different stakeholders that influence the organization, e.g. different customer preferences that make several positioning opportunities feasible in the market (Porter 1980).

Different functional demands often require that organizations emphasize alternative strategic orientations, for example generic and ethical pharmaceutical companies emphasize R&D differently and may therefore emphasize different dimensions of performance. The generic manufacturers emphasize low price and little R&D while ethical manufacturers emphasize R&D and marketing. As noted by Porter (1980), strategic choice means that the firm chooses a distinct strategic orientation, and combining generic strategies can result in a situation where the organization is stuck in the middle. Porter even goes so far that he asserts that different generic strategies require different organization designs.

The notion of realized strategy differs from strategic intent. Realized strategy can be defined as a consistent pattern of behavior in the organization while strategic intent is associated with a priori strategic choice (Mintzberg 1978, Mintzberg and Waters 1982, Venkatraman 1989). As strategic intent can be regarded as a thought experiment that results in a realized strategy if the intent is carried through, strategic intent may be possible to change at close to zero marginal cost. Therefore strategic intent is likely to be less influenced by the design of the organization than realized strategy. Moreover, what ultimately influences the performance of the organization is its realized strategy since this directly influences the cost and revenue stream of the organization.

Adaptation of the firm's realized strategy would be trivial if there were no adjustment costs, and I therefore assume that the firm's organization design is costly and hard to change as stated above (Arrow 1974). Firms must therefore choose their configuration of organization design to reflect their desired strategic orientation since the design constrains the realized

strategy (Ghemawat and I Costa 1993, Miles, Snow and Pfeffer 1974, Leifer and Huber 1977, Normann 1977).

Realized strategies can be described in many ways. For example, Venkatraman (1989) developed a six-dimensional empirical construct to represent realized strategies, and Miller (1987) represented strategy in terms of four dimensions. In this paper, I suggest the theoretical notion that strategies can be aiming at either static efficiency or dynamic efficiency (Ghemawat and Ricart I Costa 1993). Although this simple distinction does not capture all the richness of realized strategy in practice, I believe that it captures the essential features of a fundamental strategic tradeoff, namely the tradeoff between current and future performance.

Static efficiency focuses on exploitation of existing resources, and will be associated with highly productive operations. Dynamic efficiency aims at developing new resources, and will be associated with highly innovative operations. While organizations may have as their strategic intent to master both static and dynamic efficiency, they may find themselves “stuck in the middle” if they actually attempt to implement both (Porter 1980).

Dynamically efficient strategies normally require organic organization designs while statically efficient strategies normally requires mechanistic designs if they are to function effectively. Dynamically efficient strategies normally require close contact with customers, users, suppliers and other important stakeholders and frequent changes will be the norm. Statically efficient strategies normally require strict behavioral control and stability. If this is the case, and my early assumption that organization design constitutes a specialized and irreversible investment in information processing capability is adopted, the firm’s realized strategy is constrained by the chosen design features (Ghemawat and Ricart I Costa 1993, Schuler and Jackson 1987).

Gresov and Drazin (1997) suggested that organization design situations may be characterized by varying degrees of conflict in functional demands for organization designs. Such differing functional demands are ultimately caused by the strategic choices that managers make about how to relate to threats and opportunities in the organizational environment. Strategic groups within industries are one example where within-industry variation enables firms to pursue more than one competitive strategy (e.g. Caves and Porter 1977, McGee et al 1995, Porter 1980). Similarly, differences in the perceived investment horizon, for example due to first mover advantages, may lead some firms to emphasize growth over profits for a period (Lieberman and Montgomery 1988, 1998). The firm’s realized strategy can be viewed as the manifestation of the choices managers make about how to adapt to the perceived threats and opportunities in the environment given the firm’s resources.

When the organization faces multiple and conflicting functional demands, it may try to adapt its strategies to one particular functional demand or accept a suboptimal design, depending on the decision constraints the firm faces (Gresov and Drazin 1997). Relatedly, Porter (1980) argued that simultaneous differentiation and cost orientation is infeasible while Miles & Snow (1978) argued that lack of consistency between the elements of the firm's strategic type leads to poor performance. In general, if there are few decision constraints there may be more than one feasible solution, leading to equifinality as emphasized by Gresov and Drazin (1997).

Efficiency and effectiveness are often contrasted in the literature, and some of the conflicts in terms of functional demands placed on organizations may relate to a tension between achieving either efficiency or effectiveness (Burton and Obel 2004). The terminology static and dynamic efficiency is often used to denote a similar tension in the strategy literature (Ghemawat and Ricart I Costa 1993, Teece et al 1997). Static efficiency entails a focus on improvements within known possibilities while dynamic efficiency entails a focus on discovering new ones. Static efficiencies are believed to emerge from relatively repetitive and predictable behavior in the organization with a short term focus while dynamic efficiencies emerge from a longer term focus and more creative behavior (Ghemawat and Ricart I Costa 1993, Schuler and Jackson 1987, Teece et al 1997). Thus, at least in some cases, static efficiencies may emerge at the cost of achieving dynamic efficiencies and vice versa.

Since dynamically efficient organizations have an orientation towards exploring future possibilities, firms that implement such strategies are likely to perform better on growth, innovation and similar measures than on current profitability or similar current performance measures. Firms oriented towards dynamic efficiency must usually make costly up-front investments in return for future market gains, and therefore growth will come at the expense of current profits. In contrast, firms that implement strategies that are oriented towards achieving static efficiencies are likely to perform better on current profitability measures since they place less emphasis on future oriented investments and more emphasis on exploiting existing resources.

These assertions need to take into account the possible relationships between dynamic and static efficiency. As noted by March (1994), performance above aspiration levels may induce the organization to increase its search activity, e.g. future growth and innovation is driven by higher current profitability. Thus, the relationships are clearly more complicated than I have assumed above.

So far, the logic I have presented is that the organization's performance on *multiple* performance dimensions is determined by its emphasis on multiple strategy dimensions, such that dynamic efficiency is improved if the

organization pursues e.g. investments in advertising, R&D, and similar future oriented activities, and static efficiency is improved if the organization pursues investments in activities such as manufacturing improvements, quality systems etc. However, the ability to pursue such activities is constrained by the organization design. Moreover, I have argued that the organization is likely to make adjustments in its strategy or design when it observes its performance.

I have summarized the argument in figure 9.1. The solid arrows in the figure illustrate direct influences, i.e. organization design emphasis provides an influence of strategy orientation, and strategy orientation provides an influence on organizational performance. The dotted arrows in the figure illustrate feed-back loops from performance to strategy and organization. Thus the feed-back provided through inferences made from observed performance provides a possible reinforcement or dampening mechanism on the convergence of the organization design towards a steady state.

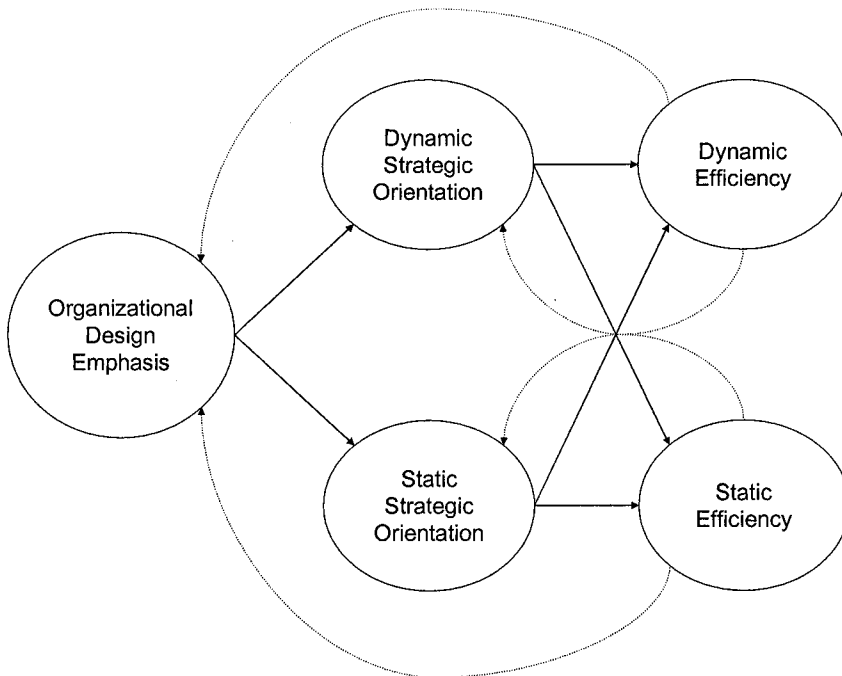


Figure 9-1. Dynamics of organization design

In the next section, I become more explicit about the nature of the organization design, and which designs that influence dynamic and static strategy orientations respectively.

5. ORGANIZATION DESIGN ORIENTATIONS AND THEIR EFFECTS ON REALIZED STRATEGY

Organization designs have been characterized in many ways over the years, and researchers have formulated the basic logic in different terms. I do not intend to break new ground in this respect, but will summarize some important distinctions found in the literature. Early design literature examined empirically the relationships between design and performance, and used a contingency logic for explaining the relationship between design and performance. The relationship assumed was that the effectiveness of design was determined by its fit with a number of design contingencies such as technology, environment, strategy, and so on. Most of the (empirical) literature has studied partial relationships, and assumes that contingencies moderate the effect of different design *variables* (Schonhoven 1981). In the conceptually oriented literature, there was some recognition that organization design was more complex, and design variables influenced each other (e.g. Mintzberg 1979, Miles and Snow 1978). This has been reflected empirically in research that has employed a configurational perspective (Meyer, Tsui and Hinings 1993). Loosely stated, the configurational perspective merely assumes that decision variables are interrelated – or co-specialized as asserted in the discussion above. This implies that design inconsistencies among design variables are likely to result in reduced performance, and that the organization design – understood as a combination of several design variables – should be matched with the design situation.

Although there is a substantial literature, both conceptual and empirical, that elaborates on different organizational archetypes or typologies, such as a machine-bureaucracy (cf. Mintzberg 1979), I will depart from a simpler representation of design in terms of two fundamental properties of organizational design. Inspired by Burns and Stalker (1961), I will characterize organization designs in terms of their organic and mechanistic properties, and suggest a simple characterization of organization design that reflects a fundamental constraint on the activities that organizations pursue. Table 9.1 attempts to characterize some key dimensions of mechanistic and organic organization designs.

Formalization refers to the extent of use of standards for procedures, performance, and the designs of jobs (Miller and Dröge 1986, Khandwalla 1974, Pugh and Hickson, 1976). If formalization is high, the organization

keeps information processing at the necessary minimum, and exceptions are unlikely to be registered by the organizational system. The capacity to handle complex information is therefore lower for highly formalized organization designs. Since dynamically efficient strategies require an ability to interpret complex and ambiguous information, a formalized design does not seem appropriate. In contrast, a formalized design allows a firm to respond efficiently to new information, when there is low complexity and ambiguity of information. This seems more appropriate for statically efficient strategies where there are few exceptions and much regularity. Therefore high degrees of formalization are likely to be associated with statically efficient strategies while low degrees of formalization are likely to be associated with dynamically efficient strategies.

Table 9-1. Summary of key organization design variables

Mechanistic design	Organic design
<i>High formalization</i>	<i>Low formalization</i>
Extensive use of written procedures	Little use of written procedures and
High degree of task specialization	Low degree of task specialization
Strict performance control	Relaxed performance control
<i>Low integration</i>	<i>High integration</i>
Little use of liaison processes	Extensive use of liaison processes
Little use of liaison structures	Extensive use of liaison structures
<i>High centralization</i>	<i>Low centralization</i>
Little delegation of decision making authority	Extensive delegation of decision making authority

Integration is associated with the use of liaison processes and structures (Galbraith 1973, Lawrence and Lorsch 1967, Miller and Friesen 1984, Mintzberg 1979). Liaison processes and structures provide integration of organizational activities (Miller and Dröge 1986, Lawrence and Lorsch 1967). They are implemented to improve the interpretation of complex issues by bringing together different sources of experience, expertise, and information. Integration therefore handles coordination needs between subunits in the organization when standardized rules or simple messages do not suffice. Dynamically efficient strategies are more likely to be characterized by exceptions and complex issues than statically efficient strategies, since dynamic efficiency emerges from experimentation and innovation while static efficiency emerges from a focus on exploiting existing resources. Therefore extensive use of integration is associated with dynamically efficient strategies. In a complex organization, some integration is always necessary, and some integration is beneficial for organizations pursuing static efficiency. It is likely that the effect of integration will be higher for organizations pursuing dynamic efficiency than for those that pursue static efficiency.

Centralization is characterized by the degree of delegation of decision making authority where low degrees of centralization means that employees have high discretion over decisions and high degrees of centralization means that employees have little discretion over decisions (Pugh et al 1968, 1969). A high degree of centralization means that there are few decision makers in the organization. Therefore only few individuals will handle exceptions and provide interpretation of complex issues. If the firm pursues a business strategy that is oriented towards dynamic efficiency, decision makers are likely to be overloaded with information processing tasks. Moreover, they will often lack the expertise and domain-specific experience to make proper evaluations and interpretations of the issues at hand. In contrast, since those organizations pursuing static efficiencies face less complex decisions, a centralized organization design may be an efficient choice. Organizations with high degrees of centralization are therefore likely to be oriented towards static efficiency strategies while organizations pursuing dynamic efficiencies will be oriented towards low degrees of centralization.

6. TOWARDS A DYNAMIC CONTINGENCY MODEL OF DESIGN

In the above, I have discussed a causal model where organizations choose the design based on a tradeoff between dynamic and static efficiency, and that this tradeoff is managed by adjusting the organization design configuration. The adjustment process occurs because designers do not have perfect information a priori, and therefore have to learn about the effectiveness of the chosen design from their experiences. In equilibrium, the organization will choose a particular balance between the different strategy and design emphases. As illustrated in figure 9.1 above, I assume that organizations adjust their designs and policies when they receive performance feed-back until they reach equilibrium. However, the organizational information system also determines the dimensions of performance that are monitored, and the weight attached to new information. Therefore, there will be a tendency to monitor dimensions that are consistent with strategic goals, and even disregard information that disconfirms prior beliefs (Bazerman 1990): This implies that the organization will converge to a simpler repertoire of designs and strategies, what Danny Miller (1993) called a “pure” model. Such a perspective also implies that adaptation to new, disconfirming evidence will be slow. In his study of Intel, Burgelman (1991) describes a number of similar phenomena where conventional wisdom outweighed new knowledge and caused adaptation to changed market conditions to be slower.

The penalty for slow adaptation is likely to be higher in less munificent environments, suggesting that organizational environments influence both the direct relationships between design variables, strategy variables, and performance variables as well as the feed-back mechanisms. I therefore expect that the model I have advanced is may provide a fair synthesis of the contingency (Donaldson 2001) and configurational (Meyer, Tsui and Hinings 1993) perspectives on organization design. Consider the model in figure 9.1. If a contextual element such as the organizational environment is viewed as a contingency factor for organization design, then I would expect that the organization design requirements as well as the desired strategy would change. Therefore, the model parameters would be likely to change quantitatively if the environment was controlled for. There is a rather substantial literature on organization design that investigates the influence of situational contingencies on organization design and effectiveness. Three main contingencies found in the literature are those of organizational size and age, and environmental uncertainty. Size and age often claimed to influence the extent of bureaucratization (see Mintzberg 1979 pp. 227-248 for a summary), and controlling for size or age may alter observed relationships between design and strategy. Also, when environmental uncertainty is high, organizations are likely to adopt more organic structures (see Mintzberg 1979 pp. 267-287 for a summary). When such traditional contingency variables are considered, it would make sense to view the model in figure 9.1 as a mediating model of design that is nested within a moderation model where contingencies change model parameters. This type of reasoning, in my view allows for a more precise definition of what a contingency variable is, namely a variable that is viewed as *exogenous* for the design problem at hand.

7. DISCUSSION

What I have provided in this chapter is an alternative formulation of the organization design problem. One where the organization design provides a constraint on realized strategy, i.e. a constraint on organizational activity, and thereby indirectly influences organizational performance. This formulation treats realized strategy as a mediator of the relationship between organization design and performance instead of assuming a moderating effect. The model also acknowledges that organization design develops over time as the organization receives feed-back about its performance, and organizational design, via its treatment of performance related information, tends to reinforce current designs if feed-back is positive and tends to ignore or react slowly to negative feed-back.

7.1 Informing the theory of organizational design

I believe that there are substantial issues raised for the theory or theories of organizational design in this chapter. First, I believe that there is a need to reflect about cause and effect in organization design theory. Most theories of organization design have employed some sort of interaction explanation of the effectiveness of organization designs. While there are many good reasons to employ such a model, I believe that the model proposed herein is more consistent with the explanations of the function of the organization design found in the literature (Galbraith 1973, Tushman and Nadler 1978). This means that a causal model, in my view, should reflect a separation of causes and effects. I have attempted a simple representation of a model of organization design in this chapter where I acknowledge differences between cause and effect, and suggest some key feed-back mechanisms that change the strategies and designs over time.

I also believe that the model illustrated in figure 9.1 may be useful for conducting empirical studies of organization design. The empirical design literature is has a very rich history, and measures of design variables are well developed and validated. However, statistical research methods have advanced substantially since the 1970's and 1980's where organization design research was at its highest. Standard and specialized software packages now allow for easy modeling of complex causal relationships and time series relationships, and therefore empirical researchers can now pursue empirical research that extends existing studies with more sophisticated methods. My personal interest is structural equation modeling that allows for empirical examination of the complex relationships shown in figure 9.1, and also allows for time series modeling if the researcher is interested in pursuing this line of inquiry. Specifically, structural equation modeling is useful if the researcher is interested in comparing direct and indirect effects and alternative competing nested model structures. Like many others, I believe that a future research challenge is to develop high quality longitudinal data sets that are sufficiently rich to capture the complexities of evolving organization designs. Until this happens, empirical research should satisfy itself with assuming steady states.

7.2 Informing the practice

There may also be some implications for practice in the arguments provided above. First, organization design as a practical exercise should consider that design provides informational constraints on organizational activity. Organization designs are likely to be co-specialized and costly to

change, and therefore lower performance will result if designs do not reflect the desired strategy and performance dimensions.

Secondly, I believe that designers should reflect over possibility that organizational systems disregard negative feed-back and readily absorbs positive feed-back. While the resulting path dependence may be desirable for many purposes, path dependency may also be a sign that the organization is likely to fall into a competence trap (Leavitt and March 1988). Therefore, if e.g. competitive conditions fluctuate substantially over time, organizations should invest in a bit of slack since steady states are not likely to persist over time. I imagine that it is easier for organizations to invest in what March (1994) refers to as “slack search” than to actually act upon the findings of such search. IBM’s experiences in the personal computer industry are a case in point.

8. CONCLUSIONS

In this chapter I have provided an extension and refinement of the information processing model of organization design (Galbraith 1973, Tushman and Nadler 1978). The contribution of the chapter is to view the organization design as a constraint on the firms’ realized strategy, and thus, since it is the activities of the organization that maps directly onto performance, organization design influences performance indirectly. This would be a minor esoteric methodological point for modeling organization design and its influences if the organization’s investment in its design was not sunk. Because the investment is specific to idiosyncratic purposes, and because these dispositions are strengthened over time as the organization learns and unlearns, the constraining influences of design are far from trivial. Therefore, acknowledging that design frames action and choice can be an important insight for both researchers and practitioners.

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Chapter 10

ACTION LEADERSHIP, MULTI-CONTINGENCY THEORY AND FIT

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Abstract: What is a good measure for an action-oriented leadership style to employ in the Multi-contingency Model? We develop leadership dimensions of delegation and uncertainty avoidance using factor analysis and test its implications, here on strategic implementation. An explore-exploit view of strategy is similarly confirmed using factor analysis. Using these complementary measures, we test four misfit hypotheses. Of the four, the data from medium-sized Danish enterprises support two hypotheses: a strategy of low exploration is a misfit with a leadership style of high delegation; a strategy of low exploitation is a misfit with a leadership style of high uncertainty avoidance. For researchers, an action-oriented leadership approach is integral to the multi-contingency theory and greatly enriches our theory of organizational design. For CEOs, leadership is made operational and action-oriented to solve problems and resolve misfit conditions for good performance.

Key words: leadership, strategy, uncertainty avoidance, preference for delegation, exploration, exploitation, fit, organizational performance

1. INTRODUCTION

What is action leadership in a multi-contingency world? How does action leadership and strategy fit for superior performance?

Burton, DeSanctis and Obel (2006), and Burton and Obel (2004) include leadership and strategy concepts in their multi-contingency model of

organizational design that Burton, Obel, and Lauridsen (2002) had examined earlier using categorical measures and hypotheses on misfit losses. Their aggregate results suggest that action leadership and firm strategy fit is important. However, Burton et al. used aggregated measures and did not investigate the effect of the individual misfits and their implications.

This study goes beyond earlier arguments and studies of the Multi-Contingency Model with more detailed and action-oriented leadership measures, explicit strategy measures and further applying these measures to test specific misfit relationships between leadership style and strategy. We propose a cognitive action view of leadership which suggests leadership in a way that it can be related to affect performance. Leadership is then central to a multi-contingency theory of organization. While there are many notions of leadership, we develop leadership measures that are based upon decision-making concepts which are complementary with other multi-contingency measures, here strategy in particular. In that way, fit and misfit notions can be stated with strategy and other contingencies which link individual cognitive processes and actions with firm or organizational level choices and designs.

To develop a simple measure of CEO leadership style to apply in the Multi-Contingency Model we build upon Cyert and March (1963). We find that two dimensions (preference for delegation and uncertainty avoidance) describe leadership style well, and we further demonstrate that leadership style can be categorized according to four types: leader, entrepreneur, manager, and producer.

A classical study on strategy by Miles and Snow (1978) developed a typology of prospectors, analyzers, defenders, and reactors. The Miles and Snow typology is widely used empirically, and it is very robust (Hambrick, 2003; Doty et al., 1993). In this study, we map the Miles and Snow categories onto the March's (1991) exploration and exploitation strategy dimensions and thereby obtain measures of strategy as reflective of the firms' approach to innovation, in particular whether it exploits its current situation or whether it adopts the strategy of exploring new innovations (March, 1991).

We relate these measures of leadership style and strategy and test them on a sample of 407 Danish medium-sized enterprises.

2. THEORETICAL PERSPECTIVES ON LEADERSHIP STYLE AND STRATEGY

2.1 Leadership style

In terms of relating leadership style to the Multi-Contingency Model it is worthwhile to take point of departure in the information processing view. By taking an information processing perspective, a leadership style is reflective of the CEO's information processing patterns and behaviours, i.e. it is consistent with a cognitive view of leadership. This way, leadership style can be related to other contingencies by judging whether the CEO's information processing capacity fits the information processing demands, as determined by contingency factors.

Burton and Obel's (2004) Multi-contingency Model is one of the few frameworks which focuses on leadership style as information processing. They (p. 100-103) summarize several traditional leadership models on six dimensions: preference for delegating decisions, attitude towards proactive or reactive decision-making, time horizon of decisions, the level of detail in decision-making processes, the degree of risk aversion, and the preference for motivational or control-oriented leadership. A CEO who is characterized by low preference for delegation, reactivity, short-term horizon, high level of detail, high risk aversion, and preference for control over motivation is similar to literature's theory X, as opposed to theory Y (McGregor, 1969), autocratic as opposed to democratic (Likert, 1967); or manager as opposed to leader (Zalesnik, 1979; Kotter, 1988). An advantage of Burton and Obel's framework is that it captures the variety inherent in managerial decision-making by taking an explicit focus on information processing. The six dimensions measured as high or low capture considerable idiosyncrasy in the CEO's use of information. The question is, however, whether their one dichotomous representation of leadership allows sufficient detail. It would seem likely e.g. that a leader could rate high on preference for delegation while at the same time rate low on riskiness.

In their behavioral theory of the firm, Cyert and March (1963) describe how decisions are the result of what they call problemistic search which is motivated by the problem, simple-minded and biased by the experience of the decision-maker. Further, they describe how decision-makers avoid the uncertainty of long-run anticipation and commitments by focusing on the immediate problems and utilizing short-term feedback. Thus, decision-makers use reasonable heuristics rather than normative optimization – an information-processing view of managers.

When relating the Cyert and March's concepts of problemistic search and uncertainty avoidance to the six Burton and Obel (2004) dimensions, they

seem to capture their dimensions well. For instance, the managerial propensity to delegate is a reasonable decision-making heuristic when a CEO finds it efficient in terms of the available time, and when the CEO believes decisions made by others will be congruent with her own preferences. Similarly, the Burton and Obel dimensions of risk avoidance, preference for detail, reactiveness, short term decision-making, and control vs. motivation can be summarized by the notion of uncertainty avoidance. One way to avoid the uncertainty of long-run anticipation and commitments is to simply avoid correctly anticipating events in the distant future by using short-run reaction to short-run feedback, i.e. solve pressing problems rather than developing long-run strategies and avoid anticipating the environment by negotiating with it.

Thus, building upon an information-processing perspective, leadership styles can be described and measured by a manager's preference for delegation and a manager's preference for uncertainty avoidance. Here the cognitive link is that leaders use information to define problems or identify misfits; then subject to their own style in terms of preference for delegation and preference for uncertainty avoidance, they develop action plans or strategies which are consistent with the leadership preferences; and the fit is important in terms of performance.

2.2 Strategy

Probably two of the most well known, competitive strategy frameworks are Porter's (1980) and Miles and Snow's (1978). Porter (1980) describes two generic strategies: low cost and product/service differentiation. Even though usually depicted as generic and opposing strategies (Govindarajan, 1988, Venkatraman & Camillus, 1984), Porter himself argues that the pursuit of one strategy does not allow the ignorance of the other – there will always be trade-offs. The original Miles and Snow (1978) model addresses organizational adaptation seen as a response to three simultaneous problems: entrepreneurial, engineering and administrative problems which are confronted differently. In order to describe different responses to the problems they developed a four-category typology: defenders, prospectors, analyzers, and reactors. Nicholson, Rees and Brooks-Rooney (1990), and Burton and Obel (2004) extended this typology to include a distinction between analyzers with innovation and analyzers without innovation. Analyzers with innovation can have innovation with regular production, while analyzers without innovation merely adopt new ideas by copying from competitors.

While Porter's framework stems from industrial economics and consequently argues that the effectiveness of strategies is dependent on the

industry, Miles and Snow explicitly acknowledge the strategic choice argument and argue that the effectiveness of their strategies is dependent on the management philosophy of the firm. Because this fits well with our ideas of uncertainty and information processing, we chose their framework as point of departure. Miles and Snow (1978) viewed their categories as being points on a scale going from defenders to prospectors with the analyzers rating high on both efficiency and effectiveness, and reactors as outliers. The question is, however, whether such dichotomous ratings sufficiently capture the richness of strategic typologies. Instead, it could be argued that the two dimensions, efficiency and effectiveness, are independent, thereby making it possible to conceptually capture whether organizations pursue strategies that are highly efficient and effective at the same time.

Clearly, many factors make up a firm's strategy. Essentially, however, strategy is about adapting the organization to its environment under uncertainty – either proactively or reactively (Mintzberg, 1978). March (1991) discussed how organizations, when relating to their environments, must continuously search for a mix of exploration and exploitation. Exploitation includes: refinement, choice, production, efficiency, selection, implementation, and execution (March, 1991:71). Exploration includes: search, variation, risk-taking, experimentation, play, flexibility, discovery, and innovation (March, 1991:71). Organizations search for a mix of the two: exploration alone creates innovativeness, but is likely to result in too many underdeveloped ideas; exploitation alone, although assuring efficiency and perhaps competitiveness, is likely to lead to inertia. Based on this, a firm's strategy will always be the outcome of decisions made between exploration and exploitation. March's (1991) concepts have usually been used as constituting two ends of a continuum. We argue that organizations can rate high on exploration and exploitation independently. Thus, exploitation and exploration should not be seen as end-points on the same scale, but rather be depicted as orthogonal dimensions in a two-dimensional space. Relating the Miles and Snow (1978) framework to the March (1991) categories, the prospector strategy would rate high on exploration, and the defender strategy high on exploitation. The analyzer with innovation strategy, however, would be expected to rate high on both exploration and exploitation, and the analyzer without innovation would be expected to rate high on exploitation, but less high on exploration than the analyzer with innovation. The two-dimensional space also seems consistent with Porter's argument that the pursuit of one strategy does not allow the ignorance of the other. Thus, with two dimensions rather than just one, we obtain more accuracy in the description of strategy types, and provide a better operationalization of how firms prioritize their resources between exploration and exploitation.

3. HYPOTHESES

Donaldson (2001) argues that fit is a balance between the levels of contingency and structure that produce higher performance. Contrary, a misfit produces a negative effect on organizational performance. Therefore, a misfit is a condition that calls for the organization to move back to fit. In their Multi Contingency Model, Burton and Obel operate with the assumption of equifinality. With equifinality, there are likely to be more fit relationships than there are misfits, and therefore, focusing on misfits is empirically convenient. Moreover, misfits provide a managerial orientation. Misfits have a negative impact on performance, which managers react to by taking action to fix them. Fit recommendations are triggered by misfit conditions; fit recommendations are operational only if the organization has a misfit. This is why we focus on misfit relationships rather than fit relationships.

With the action-oriented description of the preferences of the leadership style and strategy, will misfits between these two dimension then lead to inferior performance?

When relating our hypothesized leadership style to strategy dimensions, it would seem that high exploration would not go well with a leadership style characterized by a low preference for delegation. Many people who understand, e.g., trends in the environment will associate a strategy of high exploration with innovation. This is not likely to be consistent with the information- processing profile of leaders with a low preference for delegation. Leaders with a low preference for delegation are probably intently involved with implementation, and authority and responsibility are likely to be vested in the leader. Together with an exploration strategy, such leadership styles will most likely become bottlenecks in the information-processing. Hence we hypothesize:

Hypothesis 1: A low degree of preference for delegation is a misfit with a high degree of exploration.

In contrast, leaders with a high preference for delegation will require formalization and control mechanisms which will probably drive out exploration. Thus, we hypothesize:

Hypothesis 2: A high degree of preference for delegation is a misfit with a low degree of exploration.

In the same way, high exploitation would not seem to go well with a leadership style characterized by low uncertainty avoidance, as defined by risk aversion, short-term decision-making, etc. This type of leaders are usually challenge-seekers prepared to engage in high risk strategies, for

which reason they will not have the needed focus on uncertainty reduction as required by a strategy of high exploitation. Therefore we hypothesize:

Hypothesis 3: A low degree of uncertainty avoidance is a misfit with a high degree of exploitation.

In contrast, a leader with a high preference of uncertainty avoidance prefers to make close decisions and stay close to the current condition. Thus, we hypothesize:

Hypothesis 4: A high degree of uncertainty avoidance is a misfit with a low degree of exploitation.

Figure 10.1 depicts how our concepts of leadership style and strategy are hypothesized to relate to a match of information processing demand and capacity.

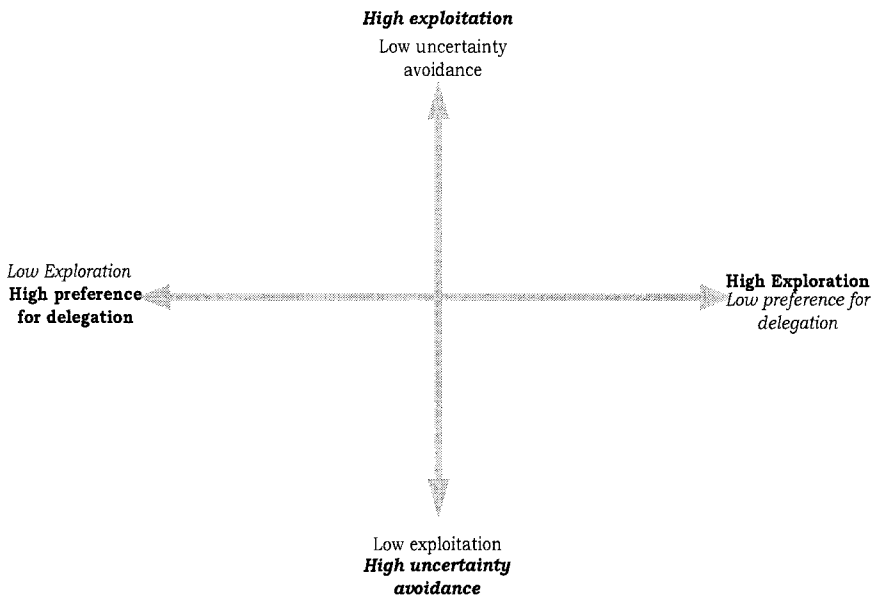


Figure 10-1. Hypothesized misfit relationships between leadership style and strategy

4. METHOD

4.1 Data

The data comes from a survey of 1097 small and medium-sized Danish service and manufacturing firms in the western part of Zealand, Funen and the triangular area of Southern Jutland. The survey comprises all the firms within the sampled geographical area. It was conducted as a combined telephone and mail survey in the spring of 1997. The questions were related to technology, strategy, organization, leadership style in the Burton and Obel (1998) multidimensional contingency model, as well as purchasing and marketing patterns.

The large database was divided into groups of manufacturing and service firms. The two groups did not receive the same questionnaires. The data used in this study was drawn from a subset of 407 small and medium-sized manufacturing firms (i.e. firms with more than 10 and less than 500 employees). because the manufacturing firms were asked questions related to both strategy and leadership style. Of the 407 enterprises, 135 were medium-sized (50-499 employees) and 272 were small (10-49 employees). The response rate of medium-sized enterprises was 49% and the response rate of small manufacturing enterprises was 28%. This ratio makes it possible to generalize confidently from the sample.

The data-collection process consisted of telephone interviews with the total population of firms where some initial data were collected and permissions were obtained to send a questionnaire to the CEO. Questionnaires were sent out in March and April 1997. Using the CEO as informant, the data in this study are not publicly available; they represent the CEO's view of the organization and its situation. This view is particularly relevant in the firms studied, as the influence on decision-making in small and medium-sized firms is highly influenced by the CEO. Here, we follow the sampling strategy advocated by Seidler (1974) using the same type of key informant in all of the sampled organizations, thus keeping the sample bias constant across the organizations.

The data collection procedure and data are described further in Eriksen and Døjbak (1998a, 1998b)⁵.

Financial data for 1999, 1998, 1997 and 1996 were collected from public sources, i.e. the electronic database CD-Direct. CD-Direct is published by Købmandsstandens Oplysningsforbund, a Danish purveyor of credit status on companies. All firms in the database were incorporated firms with limited

⁵ These publications are available from the first author of this chapter.

liability (A/S and ApS). According to Danish law all such firms must publish their annual financial results. The database contains the publicly available financial statements. As our measure of financial performance we used return on assets (in the following ROA), where income is measured before tax but after interest payments and depreciation. ROA is one of the most widely used profitability ratios in organizational and strategic analysis (Hax et al., 1984).

4.2 Leadership measures

Data for measuring Burton and Obel's six leadership dimensions were a set of 18 questions which were demonstrated to capture the six dimensions well (Burton, Lauridsen and Obel, 2002). The actual questions and their original mapping to the six Burton and Obel dimensions are shown in Appendix 1. Table a, Appendix 2 show descriptive statistics for the leadership variables comprised in the study, including means and standard deviations.

To assess the validity of our leadership constructs, we conducted a confirmatory factor analysis (Sharma, 1996: 128) based on the 18 questions measuring the six Burton and Obel (1998) leadership dimensions. The results are reported in Table 10.1.

Table 10-1. CFA results, Leadership style

	Factor coefficient	t-value	R ²
	Delegation		
Preference for delegation	1.00		1.00
Solution of human problems	0.07	0.84	0.00
Stimulated cooperation	0.13	1.42	0.01
Formulated ideas/visions	0.00	0.03	0.00
Guidance of employees	0.61	7.59**	0.22
Implementation of new routines & methods	0.50	5.88**	0.15
Control of accounts & budgets	0.65	8.36**	0.26
Rules & procedures followed	0.88	12.78**	0.46
Reasonable use of resources	0.33	3.75**	0.07
Detailed information	0.46	5.32**	0.13
Wait and see before action	0.30	3.34**	0.05
Preference for minimizing risk	0.50	5.91**	0.15
Leading employees following rules	0.89	13.05**	0.48
Non-leading employees following rules	0.74	9.95**	0.33
Controls that leading employees reach expected results	0.37	4.26**	0.09
Controls that non-leading employees reach expected results	0.43	5.02**	0.11
Results-based salaries to leading employees	0.06	0.71	0.00
Results-based salaries to non-leading employees	0.14	1.56	0.01

N=241

The results of the factor analysis indicate a good model fit ($GFI^i = 0.85$), and the results show that the coefficients, as expected from the theory, have positive signs and that the coefficients are significantly positive. Except for the coefficients for Solution of Human Problems, Stimulate Cooperation, Formulate ideas/visions; Results-Based Salaries for Leading Employees, and Results- Based Salaries for Non Leading Employees, which are insignificant. All remaining coefficients are significant at the 10 per cent level. For the non-significant variables, the coefficients are all in the predicted direction, but they are not significant. The R^2 values indicate the amount of variation in the structure covered by each of the manifest variables. Overall, the results of the confirmatory factor analysis support the suggestion of establishing two common factors which we denote: Preference for Delegation and preference for Uncertainty Avoidance.

The obtained measures ranged potentially from minus to plus infinity. In order to avoid scale problems in the following regression analysis, the scores were rescaled into the interval from 0 to 1. The formal calculations were:

$$\text{Delegation} \rightarrow (\text{Delegation} - \min(\text{Delegation})) / (\max(\text{Delegation}) - \min(\text{Delegation}))$$

and

$$\text{Uncertainty avoidance} \rightarrow (\text{uncertainty avoidance} - \min(\text{uncertainty avoidance})) / (\max(\text{uncertainty avoidance}) - \min(\text{uncertainty avoidance}))$$

The questions loading on the two dimensions appear from Table 10.1. As can be seen from Table 10.1, the variable “preference for delegation” defines a dimension in itself, denoted Delegation. In relation to the previous discussion on Cyert and March’s (1963) problemistic search patterns, delegation is a likely heuristic whenever CEOs find it expedient in terms of the time available, as well as when they believe decisions will be congruent with their own preferences, as formed by their experiences. Therefore Delegation captures an element of Cyert and March’s (1963) notion of problemistic search.

As also appears from Table 10.1, all the questions relating to the five Burton and Obel dimensions of reactivity, short time horizon, risk aversion, level of detail, and control (cf. Appendix 1) load on a common dimension which we denote Uncertainty avoidance. Cyert and March (1963) described how CEOs avoid the uncertainty of the future by avoiding correct anticipation of events in the distant future, and by using short-run reaction to short-run feedback, i.e. solving pressing problems rather than developing long-run strategies and avoiding anticipating the environment by negotiating

with it. This fits well with the dimensions loading on Uncertainty avoidance, because managers can avoid the uncertainty of long-run anticipation and commitments by pursuing a fine level of detail, a reactive style, short term decision-making, risk avoidance, and high control.

Furthermore, it is seen from the results in Table 10.1 that the low correlation between the two factors Delegation and Uncertainty avoidance clearly supports the hypothesized orthogonality between the two dimensions. Consistently, leadership style seems to be represented best by two, rather than by one dimension.

4.3 Strategy measures

Data for measuring Burton and Obel's (1998, 2004) refined typology of the Miles and Snow (1978) typology were 5 Likert scaled questions relating to product innovation, process innovation, concern for quality, price level, and capital requirement. The actual questions are shown in Appendix 1. Table b, Appendix 2 shows descriptive statistics, including means and standard deviations.

To assess the validity of our strategy constructs, we conducted a confirmatory factor analysis. The results from estimating strategy with two common factors are provided in Table 10.2.

Table 10-2. CFA results for strategy

Variable	Loading on Factor		t value	R ²
	Exploitation	Exploration		
Capital requirement		0.16	(1.48)	0.02
Product innovation		0.34**	(3.11)	0.12
Process innovation	0.34**		(1.65)	0.12
Quality concern	0.45**	0.30*	(3.01)/(1.67)	0.30
Price concern	0.62**		(3.44)	0.39

N=241

As it appears from table 10.2, the results of the factor analysis indicate an excellent model fit (GFI 0.98), and together with the low correlation between the two factors (Table 10.2) this supports the hypothesized structure with two orthogonal dimensions, given by Exploit and Explore.

The variables Exploit and Explore were rescaled to the interval between 0 and 1, along the lines suggested for the leadership dimensions above. Specifically:

$$\text{Exploit} \rightarrow (\text{Exploit} - \min(\text{Exploit})) / (\max(\text{Exploit}) - \min(\text{Exploit})),$$

and

Explore $\rightarrow$ (Explore-min(Explore))/(max(Explore)-min(Explore)).

Table 10.2 shows the loadings on the two dimensions. From these, it appears that capital requirement loads on exploration with a positive, but non-significant value. This seems consistent with March's notion of exploration, since search, experimentation and innovation is expensive. It also appears from table 10.2 that product innovation loads on Explore, and process innovation loads on Exploit, both with significant values. This is entirely consistent with March's notion of exploration and exploitation where exploitation is related to efficiency and refinement, and exploration with search and discovery. Quality concern loads on both dimensions. Whether organizations have a high or a low concern for quality may intuitively be related to both exploration and exploitation, and as such it is less surprising that this particular question loads on both. Finally, price concern loads on exploitation, and this also seems consistent with exploitation, where the money spent on refinement cannot as easily be captured by attracting new customers, but rather likely by customers who value the refinement of existing products. Thus, overall, Explore seems to capture exploration well, and Exploit seems to capture Exploitation well.

4.4 Return on assets performance measure

Financial data were obtained from the electronic database, CD-Direct (see above) as they became available in 1998, 1999, and 2000. The performance measure in the study is: $ROA = (PROFIT/ASSETS)*100\%$, calculated for 1996, 1997, 1998 and 1999.

5. RESULTS

Misfits were calculated before running the regression models. As suggested by the hypotheses, misfit variables were coded. Since misfits were rescaled to a continuous scale ranging from 0-1, the coding reflected the misfit hypothesis, i.e. misfits of 0 would get no effect, and misfits of 1 would get a full effect. Hence, the index for misfits reflects the degree of misfit, where high degrees of misfits got higher weightings (index values).

The hypotheses are minimal null hypotheses. They map out the relationship between strategy and leadership style dimensions to ROA performance. In this sense, misfit means that the financial result of the

strategy – leadership relationship is problematic; where return on assets (ROA) is used as the financial measure.

Finally, the impact of misfit on performance was investigated using a regression model with ROA as the dependent variable, and explanatory variables operationalizing the misfits hypothesized by Hypotheses 1 to 4. Table 10.3 shows the results of the analysis.

Table 10-3. Results

Hypothesis	Definition	Results
1	High exploration and low preference for delegation Exploration*(1-Delegation)	1.07 (0.25)
2	Low exploration and high preference for delegation (1-Exploration)*Delegation	-10.50** (-1.90)
3	High exploitation and low uncertainty avoidance Exploitation*(1-uncertainty avoidance)	0.97 (0.18)
4	Low exploitation and high uncertainty avoidance (1-Exploitation)*uncertainty avoidance	-22.34*** (-2.84)
Constant		14.73*** (3.93)
R ²		0.11
R ² (adjusted)		0.10

Coefficients are shown with t-values in parentheses

*** : Significant at 1 percent level.

** : Significant at 5 percent level

For constant 2-sided prob(<=0), for hypotheses 1-4 1-sided prob(>0)

As will appear from Table 10.3, the hypothesized impact on ROA of misfits two and four (hypotheses two and four) was significantly negative, while the hypothesized impact on ROA of misfits one and three (hypotheses one and three) were not significantly different from zero.

Thus, generally, our results clearly support that a strategy rating low on exploration does not go well with a leadership style with a high preference for delegation (H2), and that a strategy rating low on exploitation does not go well with a leadership style characterized by high uncertainty avoidance (H4). Moreover, misfits between either of these dimensions lead to negative performance consequences. For strategies rating high on exploration together with a leadership style of low delegation (H1), and strategies rating high on exploitation together with a leadership style of low uncertainty avoidance (H3), the hypothesized negative impacts are not significant, yet the low values of the beta values also do not reject the hypothesized negative relationships.

As it will appear from table 10.3, we are able to explain as much as 11% of the variation in the dataset by these main dimensions. Considering the fact that our model neither includes individual misfit relationships between

specific strategy types nor leadership styles, nor control variables, 11% must be considered a relatively high value.

6. DISCUSSION

Using an information processing perspective we develop a leadership measure and a strategy measure that together permit us to test four misfit hypotheses, where a misfit yields a diminished organizational performance.

Concerning leadership, we find that Cyert and March's (1963) dimensions of delegation (problemistic search) and uncertainty avoidance capture leadership style well. Using factor analysis, these two dimensions of leadership measure the CEO's approach to the use of information and decision-making. For strategy, we find that March's (1991) notions of exploration and exploitation describe strategies well. The two orthogonal dimensions provide a more precise characterization of the way in which firms balance the two simultaneously. Thus, in contrast to previous studies, we find that both leadership style and strategy are more correctly depicted by two dimensions rather than by one.

Using these measures of leadership style and strategy, we develop four hypotheses regarding the effect of misfits on organizational performance. First, focusing on exploration we hypothesize (H1) that strategies characterized by high exploration will not go well with a leadership style rating low on preference for delegation, because such a leadership style is likely to become a bottleneck in the information processing and decision-making of an organization. In contrast, we propose (H2) that a strategy of low exploration is a misfit with a high preference for delegation as there will be little focus on exploration. Second, switching to exploitation, we hypothesize (H3) that a leadership style characterized by low uncertainty avoidance will not sufficiently support the detailed informational control in an organization characterized by high exploitation. Further, a strategy of low exploitation is a misfit with high uncertainty avoidance (H4), as the high uncertainty avoidance will focus on the current situation.

Using regression analysis, we test these hypotheses, and find support for the relationship between low exploration and high delegation (H2), as well as for the relationship between low exploitation and high uncertainty avoidance (H4). That is, low exploration and high delegation do not go together; neither do low exploitation and high uncertainty avoidance. For strategies rating high on exploration (H1) or high on exploitation (H3), the impact on performance was not significant, but at the same time it could not be rejected. That is, for medium sized firms, it seems possible that high exploration can obtain with low delegation and high exploitation can obtain

with low uncertainty avoidance; high exploration or high exploitation is not as sensitive to decision-making style as we hypothesize. Thus, our findings generally indicate that misfit relationships are more diverse and complex than previously argued. Furthermore, our results suggest that size may be a moderating variable to be incorporated into a model where firm size varies more; this is entirely consistent with the multi-contingency theory of design where size is a contingency factor.

Potential limitations of this research are that the data come from small and medium-sized firms in the Danish setting. Further, the firm's CEO is the informant for these data. Let us consider each issue. First, Denmark has a competitive market economy where the firms in the study operate in non-regulated markets with international competition; they are players in the global economy. The firms are not start-ups; nor are they very large firms with many divisions and businesses, and all operate in mature industries. Second, the CEO is active in the strategy-making and the operations of these firms. The CEO is knowledgeable about the strategy, and furthermore, able to comment on her own leadership style. As to future research on strategy and leadership style, it would be appropriate to investigate these misfit/fit hypotheses in other countries both as far as very small start-ups are concerned as for very large enterprises.

6.1 Implications for the theory of organization design

Leadership can be defined as well as it has been measured in innumerable ways. A cognitive action view of leadership in terms of delegation and uncertainty avoidance permits us to examine leadership fit with multi-contingencies, here strategy and the effect on performance. That is, action leadership can be measured, and leadership affects performance. Leadership is then central to the multi-contingency theory of the organization. Fit and misfit notions can be stated with strategy and other contingencies which link individual cognitive processes and actions with firm or organizational level organizational choices and designs. The implications for organizational design are that organization theory in terms of organizational variables is incomplete. Further, leadership models which are not connected with organizational choice are incomplete as well. A multi-contingency model of organization brings together multiple levels of choice and embeds attitudes towards choosing inside the model itself. Burton, DeSanctis and Obel (2006) provide a managerial and action focused theory of organizational design using these ideas.

A theory of organizational design with a focus on individuals taking action enriches our understanding and theoretical underpinning, but also makes the translation to managerial action more evident and our research

results better justified. A theory which is closer to the process will more likely be understood and applied.

6.2 Implications for the practice of organization design

Leaders can be described in many ways. One approach is to describe and measure leadership in cognitive terms of delegation and uncertainty avoidance, i.e., how they approach their jobs, see problems or identify misfits and the choices they should make about strategy, among others to fit their own style for good performance. A leader with a preference for delegation and a low exploration strategy will be less effective. A leader with a high uncertainty avoidance and low exploitation strategy has an inefficient strategy for her managerial preference. Thus leaders need to understand their styles. Do they prefer to delegate or not? Do they seek to avoid uncertainty or not? Each leadership style works well with a particular strategy – a balance of exploration and exploitation. So, for good performance it is important to match leadership and strategy.

If your leadership style does not match your strategy, what should you do? Generally, we think individuals will find it easier to change the strategy of the organization than their own leadership style; but some individuals can change it, provided that they understand the need. The important issue is not what to change but rather to understand, first the misfit, and then make the choice of change based upon the goals of the organization. Whichever approach is taken, the CEO must be central in realizing the needed change – particularly in medium-sized firms which compromise our data.

7. CONCLUSION

Overall, this chapter adds to the Burton and Obel (2004) multi-contingency model by developing detailed and action-oriented leadership style measures, explicit strategy measures, and further applying these measures to test specific misfit hypotheses.

In particular, we propose a cognitive view of leadership which suggests leadership in a way that it can be related to affect performance. Leadership is then central to the Multi-contingency Model and is complementary to other Multi-contingency Model measures, here strategy in particular. This enables us to demonstrate/establish misfit relationships between strategy and other contingencies which link individual cognitive processes and actions to firm level choices and designs.

Using our complementary leadership and strategy measures, we develop and test four misfit hypotheses. Of the four, data from Danish SME

enterprises support two hypotheses: A strategy of low exploration is a misfit with a leadership style of high uncertainty avoidance; a strategy of low exploitation is a misfit with a leadership style of high uncertainty avoidance.

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APPENDICES

APPENDIX 1: MEASURES OF LEADERSHIP STYLE AND STRATEGY

LEADERSHIP STYLE

Leadership style was measured by the variables below:

MP1: Management preference for strategic decisions:

The respondents were asked to rate the extent to which they agreed with the following statement: “Who makes the strategic decisions” (CEO alone/CEO after discussion with leader group/leader group after discussion with CEO/leader group with confirmation from CEO/leader group without confirmation from CEO 1).

MP2: Management preference for long-term decisions

Respondents were asked to rate the extent to which they gave priority to the below statements on a 5-point Likert scale. The scale ranged from “without importance”, “important”, “very important”, to “extremely important” (alpha = 0.82)

Defined as a common factor for:

1. Solutions of human problems/conflicts
2. Stimulation of cooperation among divisions
3. Formulation of ideas/visions
4. Day-to-day guidance of employees
5. Development/implementation of new routines and methods
6. Governance of economic decisions/control of accounts and budgets
7. Certainty that rules and procedures are followed

8. Certainty about reasonable use of resources

MP3: Management preference for decisions based on detailed information
Respondents were asked as to whether they agreed with this statement on a 5-point Likert scale ranging from “never” to “seldom”, “sometimes”, “often”, “always”.

MP4: Management prefers to wait and see before action, if changes occur on the company’s markets.

Respondents were asked to which extent they agreed with this statement on a scale ranging from “never”, “seldom”, “sometimes”, “often”, to “always”.

MP5: Management preference for minimizing business risk
Respondents were asked to which extent they agreed with this statement on a 3-point Likert scale ranging from “low”, “medium” to “high”.

MP6: Management preference for motivation of employees through control (as opposed to inspiration).

Defined as a common factor for:

1. Management controls as to whether leading employees follow company rules.
2. Management controls as to whether non-leading employees follow company rules.
3. Management controls as to whether leading employees reach the expected results.
4. Management controls as to whether non-leading employees reach the expected results.
5. Management uses results-based salaries and the like to motivate leading employees.
6. Management uses results-based salaries and the like to motivate non-leading employees

where respondents were asked to which degree they agreed with the mentioned statements on a 5-point Likert scale ranging from “total disagreement”, “partial disagreement”, “neither disagreement nor agreement”, “partly agreement”, to “total agreement”.

STRATEGY

Strategy was constructed on the basis of 5 Likert-scaled items, where respondents were asked whether they agreed with the below mentioned

statements on a 5-point Likert scale ranging from “total disagreement”, “partial disagreement”, “neither disagreement nor agreement”, “partly agreement”, to “total agreement”. The measures included the statements below:

1. Capital Requirement: “Does the organization operate in an industry with high or low capital requirement?”
2. Product Innovation: “We give higher priority to product innovation than our competitors.”
3. Knowledge of Production Methods: “We give high priority to a good knowledge of the recent production methods in our branch.”
4. Concern for Quality: “Our product have a better relationship between quality and price than others,” and
5. Price Concern: “How is the organization’s price level compared to that of its competitors.

APPENDIX 2: DESCRIPTIVES*Table 10-4. Leadership variables applied in the study*

Variable	Standard	
	Mean	Dev.
<i>Preference for making strategic decisions</i>	2.65	0.66
<i>Solutions of human problems/conflicts</i>	3.70	0.85
<i>Stimulating cooperation among divisions</i>	4.10	0.71
<i>Formulating ideas/visions</i>	4.25	0.76
<i>Guiding employees from day-to-day</i>	2.26	0.76
<i>Developing/implementing new routines and methods</i>	3.36	0.81
<i>Developing/implementing new routines and methods</i>	3.77	0.92
<i>Ensure that rules and procedures are followed</i>	2.88	0.82
<i>Ensure reasonable use of resources</i>	4.35	0.68
<i>Management preference for decisions based on detailed information</i>	2.24	0.87
<i>Management preferring to wait and see before action, if changes occur on the company's markets</i>	1.87	0.86
<i>Management preference for minimizing business risk</i>	2.65	0.83
<i>Management control whether leading employees follow company rules</i>	2.60	1.15
<i>Management control whether non-leading employees follow company rules</i>	3.29	1.05
<i>Management control whether leading employees reach expected results</i>	3.82	1.03
<i>Management control whether non-leading employees reach expected results</i>	3.68	1.02
<i>Management uses results-based salaries and the like to motivate leading employees</i>	2.65	1.37
<i>Management uses results-based salaries and the like to motivate non-leading employees</i>	2.72	1.59

N=241

Table 10-5. Strategy variables applied in the study

Variable	Mean	Standard Dev.
<i>Capital requirement</i>	3.58	1.04
<i>Product innovation</i>	3.87	0.93
<i>Process innovation</i>	4.36	0.82
<i>Quality concern</i>	4.57	0.55

N=303

PART 4: THE DYNAMICS OF ADAPTATION
AND CHANGE

Chapter 11

MANAGEMENT AND GENGHIS KHAN: LESSONS FOR MULTINATIONAL BUSINESS ENTERPRISES

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Abstract: This paper juxtaposes well-known and all pervasive challenges facing the management of multinational business enterprises today and the solutions developed by Genghis Khan to meet analogous challenges 700 years ago. Genghis Khan together with his children and grandchildren conquered and controlled much of the known world. What lessons does Genghis Khan offer to multinationals? The answer is found in the scope of the actions undertaken to meet the challenges facing the creation and sustainability of the Mongolian Empire. The challenges ranged from issues of communication and coordination to the issues of leadership. With continuous adaptation, Genghis Khan found innovative solutions to these challenges through the design of his organizations and the processes for the management of his Empire.

Key words: Multinational businesses, Genghis Khan.

1. INTRODUCTION

This paper juxtaposes contemporary challenges facing the management of multinational business enterprises and the solutions developed by Genghis Khan to meet analogous challenges 700 years ago. We begin by referencing the nature of the various issues faced by multinational business enterprises, today. Subsequently, we explore the accomplishments of Genghis Khan in creating an empire that embraced much of the known world during the thirteenth and fourteenth centuries. Then we seek to distill “how” Genghis Khan accomplished “what” he accomplished. This analysis allows us to

extract a number of lessons for the design and management of today's organizations⁶.

2. MULTINATIONAL BUSINESS ENTERPRISES

Challenges confronting the management of multinational business enterprises are well known. Rather than attempt to itemize these issues, all-inclusively, we can suggest an illustrative summary of these challenges within three subject areas: organizational strategy, organizational structure and organizational value systems.

Organizational strategy envelops a host of issues such as, for example, goal determination and operational specification, policy design and dissemination, and, strategic control.

Organizational structures offer numerous design variables for management, such as, to illustrate, span of control and the locus of decision-making.

In the instance of value systems, issues are even more critical to businesses operating as either international or global enterprises as opposed to domestic enterprises. Issues such as the multiplicity and importance of religion as well as the implications of different ethnic attributes are ubiquitous at the international or global level. These types of issues have a profound impact on the value systems of an organization.

Of course, these subject areas are not independent. To illustrate, we need only consider monolithic countries such as China, India and Indonesia with fundamentally different religious legacies, languages and cultures. The design and implementation of any multinational's corporate strategy is compelled to embrace different value systems. Likewise, any organizational structure must be inclusive of both the strategy and the value system. These needed actions are not sequential; they must be simultaneous and interactive.

We could readily identify more challenges as we delve into any given business enterprise, large or small: processes and practices for managing people, marketing management, operations with different labor-capital mixes, the design and use of information systems, and so on. Virtually every

⁶ This paper draws freely from a book written by Professor Jack Weatherford of Macalester University in the USA: *Genghis Khan and the Making of the Modern World*, which was published by Crown Publishers of New York in 2004. This scholarly work by Professor Weatherford provides an invaluable source of information and an outstanding bibliography. Anyone interested in reading further about Genghis Khan is well advised to seek this book. It is an enlightening, intriguing gem. Other sources consulted are included in the reference list.

issue of THE ECONOMIST illustrates challenges that must be addressed by multinational business enterprises operating globally as well as those entities operating in regional markets such as the EU or NAFTA. In summary, these challenges are universal. They require continual organizational adaptations in complex, dynamic and, frequently, hostile environments.

In the following sections, our focus shifts from these familiar subject areas to the world of Genghis Khan and the challenges confronting him in the creation and maintenance of the Mongolian Empire. We couple these challenges with his methods of resolution. Ultimately, Genghis Khan provides us with lessons, with decision rules, meriting application to the challenges of the multinational business enterprise, today.

3. THE WORLD OF GENGHIS KHAN

The boy, Temujin, who became Genghis Khan, was born in 1162⁷. He did not become the Great Leader of the Mongolian Empire until 1206. As a timeline reference, King John of England signed the Magna Charta, in 1215. But the world of the future Genghis Khan differed, immeasurably, from medieval England poised at the exit from the Dark Ages.

Within the confines of the northeast region of present day Mongolia, dozens of tribes and clans lived a nomadic life in a world defined by vast grasslands ... the steppes ... and the Gobi Desert and ancient mountains. The binding glue amongst these people was the blood of kinship. But, their world was one of constantly changing combinations of clans who knew the excesses of violence, too well: killing, plundering, kidnapping and enslavement.

The package of endowments received by the future Genghis Khan at birth was empty. His very young mother had been kid-napped from another

⁷ Two events have served to greatly increase our knowledge of Genghis Khan and the Mongols. To begin with, the Mongols lacked a written language. But, historians throughout the past centuries were convinced that a manuscript had been written at the time of Genghis Khan's death. Indeed, a copy of the document was found, in China, two hundred years ago. But translation had to wait for de-ciphering as its Chinese characters were used to represent the sounds of the thirteenth century Mongols. That document has come to be called *The Secret History of the Mongols*. After the Soviet Union was created in the twentieth century, the Communist government banned *The Secret History of the Mongols* from circulation. The birthplace of Genghis Khan in modern Mongolia was sealed. Scholars were denied access. Fortunately, that situation ended with the demise of the Soviet Union. Scholars have returned to the homeland of Genghis Khan in search of artifacts and other evidence of his life and times.

clan. His father died before Temujin reached puberty. This future leader had no formal education and lived his life as the head of an outcast family. But, by the time he was in his early forties, Temujin had fought his way to the position of the ruler of the Mongols, Genghis Khan. Nevertheless, he faced China to the east, the unknown lands and peoples to the west and the civilizations to the south and east spread out along the ancient trading route, the Silk Road. How daunting it must have been to even contemplate stretching the Mongolia Empire in these different directions where only the unknowns existed. These uncertainties would have dwarfed the uncertainties facing Christopher Columbus almost three hundred years later as he looked to the west. At least Columbus had a navigational model in mind albeit the model was wrong.

Genghis Khan, his sons and grandsons lived to conquer the world's most populated civilizations. How was this seemingly impossible accomplishment gained? How did Genghis Khan create, extend and sustain the Mongolian Empire?

4. GENGHIS KHAN: CONQUEROR, DESTROYER, BUILDER

Genghis Khan, together with his four children and numerous grandchildren, conquered a world of powerful but independent city-states, dynasties, kingdoms and an assortment of feudalistic regimes⁸. The Mongolian Empire stretched from Sea of Japan to the rivers of central Europe, from the forests of Siberia to the rice paddies of Vietnam, and from the Korean Peninsula to the Mediterranean Sea.

These accomplishments were realized without any physical resources, initially, beyond the horse; albeit, Genghis Khan acquired and used two additional resources: explosive powder and the compass. He defeated

⁸ Genghis Khan had four sons including one son of questionable legitimacy in addition to a number of grandchildren and so on. The offspring of Genghis Khan actually extended into the twentieth century. The last reigning relative of Genghis Khan died in Kabul, Afghanistan in 1944. We also note that Genghis Khan did not act alone in designing his military strategies. His military leaders were superb with special reference being given to his brilliant General, Subodei. In this paper we use the name of Genghis Khan in an inclusive family sense rather than attempt to identify and credit a given action with a particular son or grandson. Just as Genghis Khan did not actually lead his military forces in a physical sense, he did not initiate every action described in this paper. However, his hand is everywhere in the sense that he guided his offspring through his words and value system, extending throughout his life and beyond.

heavily armored armies ensconced in cities defended by walls, moats, and ramparts. Genghis Khan conquered much of the known world because he used intellectual rather than material resources: stealth, speed and surprise. These resources were critically important elements of his military strategy noted in the following sections.

To summarize, Genghis Khan defeated his enemies and conquered vast territories of land while liberating people. He conquered all as a matter of “brains over brawn”. He could be brutal when dealing with his enemy’s leaders; however, he was magnanimous and compassionate in his treatment of defeated people. Genghis Khan conquered; he destroyed; but he built the largest land-based Empire, by far, that the world had ever seen before, or after his life.

5. GENGHIS KHAN AS THE LEADER AND THE MANAGER

Genghis Khan is a mystery, an enigma. We lack any writings that could be attributed to him albeit he was the subject matter of writers during that time period when he led the peoples of the Mongolian Empire. Lacking any formal education, his pragmatic learning came from the experiences of seeking to survive ... through experimental adaptation. By default, we are compelled to attempt to understand his thinking through his actions, not by his written words.

Genghis Khan organized his military forces in units of ten. Ten warriors comprised a squad. A company consisted of ten squads. A battalion was formed out of ten companies. And, ten battalions formed an army. Genghis Khan personally selected the leaders of each army based upon his perception of the qualities needed for each leadership position. Systems based upon merit replaced aristocratic systems based upon family and ethnic ties.

In using stealth, the basic strategy of the Mongols was to divide their military forces in two parts. Then they would approach a city or enemy enclave with a relatively small force. An attack would be followed immediately by creating the feint of a retreat so as to encourage the enemy to chase them. Subsequently, the enemy would be ambushed by the larger part of the force that had served as a secretly hidden reserve and/or the undefended city or enclave would be attacked. With the surprise of such a strategy, the enemy suffered in two ways: 1. fatigue from the chase and 2. armor that was suitable for “close-in” fighting but became a liability in a chase. These innovative fighting techniques with highly disciplined and coordinated cavalry rendered the armored knights obsolete.

This combat strategy was coupled and supported with a logistics strategy. The army lived off the land and, thusly, they were able to move with the utmost speed. There were no supply trains interfering or impeding military advances. It may be noted that centuries later the failure of the armies of Napoleon and Hitler in their Russian campaigns occurred when they reached the end of their supply trains. These leaders missed the lessons of Genghis Khan.

A second military strategy was built around the siege of a city, which rested on technology-given advantages created by the Mongols. A paradox exists herein. The Mongols did not develop any new technologies but they were masters at innovation by combining technologies. In other words, they did not conduct the “break-through” research but, instead, they adapted technologies to meet their needs. To illustrate, they were the first military force to combine gunpowder from China with the technology of Muslim flamethrowers and the bell-casting technology of Europe to create the cannon. The Mongols’ development of the cannon rested on the underlying knowledge created by other people.

The cannon became the weapon of choice for the Mongols in siege warfare. This instrument of destruction ended the life of walled cities as unassailable bastions.

After capturing a city, the Mongols broke the rules. By precedence, the aristocracy inhabiting a city had been treated with virtual reverence by conquerors. Such was not the case with the Mongols. The aristocracy and other elements of a city’s leadership were executed. Conversely, the surrendering population was immediately and freely incorporated into the Mongolian Empire but not as vassals or slaves. Religious freedom was adopted as the *modus operandi*. These populous movements were obviously designed to transform the conquered people into working, contributing parts of the Empire. They were freed from the yokes of aristocracy-based regimes. Of course, any elements of a population who did not surrender were executed.

Thus, the model of Genghis Khan was to destroy those who resisted by murdering captured aristocracy and leaders, while providing others with the freedom of life within the Mongolian Empire. To sum, citizenship was universal. It was based on allegiance and loyalty: it was not based on religion, blood lines or cultures.

Prior to the entry of the Mongols onto the world scene, plunder was the reward for victors. In general, Genghis Khan banned pillaging and the associated violence. Instead, he temporarily cleared a defeated city or village of its population in order to have the time to create an inventory of valuables. Then these items were collected before the population was allowed to return.

But, the vision and goals of the Mongols were not simply ones of conquest. Genghis Khan, his sons and grandsons were creating a viable and sustainable Empire. These efforts allow us to further study Genghis Khan as a manager. But, before continuing, it is noteworthy to consider the role of Genghis Khan as a conqueror.

Firstly, Genghis Khan did not lead his cavalry into battle by riding on a lead horse and brandishing a sword while screaming threats and invectives before killing all in sight. He rarely participated as a combatant. His role was to work with the design of the military strategy and its implementation including organizational design and operating processes. He personally selected the generals of the armies. Secondly, Genghis Khan continually wrote and re-wrote his own rulebook. It is apparent that he was not a student of history. Instead, he wrote history through his actions. Thirdly, by learning from every battle, by incorporating new tactics and technologies into his plans and actions, Genghis Khan never fought the same battle twice. He was the consummate innovator, which was an integral part of his reliance on surprise. Genghis Khan was a very early exponent of unconstrained thinking.

What kind of world did Genghis Khan and his following generations create?

6. GENGHIS KHAN AND HIS LEGACIES

As a matter of perspective, Genghis Khan, with remarkable patience, took a very long view of time: for example, military campaigns would last decades; not months or years. Furthermore, the actions and the accomplishments of the Mongols were not independent of one another; the case is just the opposite.

Fundamentally, the viability of the Mongolian Empire rested on communication and trade, both in goods and ideas. Communication was absolutely vital over battlefields reaching great distances as well as an Empire that stretched over thousands of kilometers. Likewise, trade was the driving force, the essence of relationships among the diversity of people, natural resources, technologies and knowledge embraced by the Mongolian Empire.

The accomplishments of Genghis Khan and those of the members of his family who followed him would leave an indelible handprint on the future of the world; legacies that continue through today.

As accomplishments, the Mongols:

1. Created the first international postal system.

2. Recognized supreme laws of “God”.
3. Developed a single set of international laws.
4. Required reliance upon the rule of law.
5. Propagated the principle that no one is above the law.
6. Instituted practice of granting immunity to ambassadors and diplomats who would have suffered fatal outcomes during unsuccessful negotiations in the past.
7. Refined and combined calendars.
8. Instituted a universal alphabet.
9. Introduced standardized systems of weights and measures.
10. Created and produced a paper currency as a unit of account and store of value to replace heavy precious metals.
11. Created and distributed a combined passport and credit card which allowed the holder to travel, freely, throughout the Empire while assured protection, accommodation and transportation.
12. Widely distributed the spoils of war so that the goods would return to the markets immediately rather than being hoarded.

It is interesting to contemplate a world without these legacies. For example, to illustrate the bookends:

1. What would the world be like if we had no international postal system
.....
12. What would the world be like if we simply hoarded production output?

Answers to these questions defy imagination.

But the accomplishments of Genghis Khan and the Mongols reached far beyond communications and trade. They continually sought to integrate political entities. They combined small units such as villages to create large units such as countries. Hence, the footprint of Russia, today, resembles the pattern of villages that the Mongols brought together. Elements of ancient dynasties, independent states, kingdoms and a diversity of tribes were combined to form China as we know it today.

Creating larger political entities out of smaller units was but one step in the Mongols’ focus on the sustainability of the Empire. A further step focused upon the quality of life for the population. The Mongols built their Empire to last through time.

7. GENGHIS KHAN AND HIS RULE BOOK

The management of multinational business enterprises, and even purely domestic businesses, may learn from the accomplishments and actions of Genghis Khan: principles and policies by which he managed the Mongolian Empire. In the light of today, some of the rules may seem like old and familiar rules for contemporary management. Conversely, some of the rules are refreshingly new. But, Genghis Khan went beyond verbalizing the rules; he used them in guiding behavior and serving as decision frameworks.

We can offer a selection of the management rules of Genghis Khan.

7.1 Focus on the long run.

Genghis Khan consistently viewed a long run horizon measured in years, or decades and even in generations. He avoided short-term gains so as to benefit from rewards of the long run.

How many CEOs are willing to delay the short run to gain the long run benefits for their successors and their successor's successors and so on? And, yet, this notion is embedded in our entry level courses of management study. We may argue for the long run but our incentive systems are biased to the short run. We are unprepared to consider rewards for actions that take us into the uncertain and unknowable future.

In the Western world today, systems such as customer polling or point-of-sale equipment provide us with information on a real-time basis. But, as we enter other parts of the world we find market information which is incomplete, incorrect and, most often, unavailable. Even the short run is filled with uncertainty. Management needs to study environments and trends evolving through time rather than use the lens of myopia: to do otherwise requires navigating through the shoals and currents of impending disaster.

Unfortunately, in recent years, the management of some corporations has felt compelled to deliver fictitious financial results in the short run irrespective of any ethical or legal considerations. The pressure exerted by the Western financial markets to perform in the short term has resulted, recently, in a number of well-documented cases in which management "signed off" on information obtained by fraudulent means.

7.2 Develop, nurture and protect communication systems

Today, the management of multinational business enterprises benefits from communications technologies that were barely within the scope of

imagination just a few years ago. The Internet and the cell phone, for example, have collapsed distances. And, yet, managers still travel for face to face meetings. Managers still have to deal with their superiors, their subordinates and their cohorts who may be living and working in time zones that may be as many as twelve hours apart. Using this contemporary measure as a time indicator, the Mongolian Empire stretched over ten time zones.

Genghis Khan had the most primitive technological communications, the messenger or, at a more advanced level, the messenger on horseback. The science of communications was an empty box of knowledge. But, Genghis Khan benefited from the art of communications. Timely availability of knowledge of his enemy's position and behavior as well as knowledge of his own forces served as the cornerstone of speed and surprise so integral to the military strategy of Genghis Khan. Such knowledge provided the competitive advantage for military success: moreover, the competitive advantage was sustainable.

The Mongolian field of action was huge in stretching over two continents from the waters of the Pacific Ocean to almost the edges of the Atlantic Ocean. Consequently, Genghis Khan was able to arbitrage his understanding of the role of communications over numerous battle fronts; a situation which was not enjoyed by his enemies who could be best described as fragmented over distance.

The role of the organizational structure of Genghis Khan's military may be recalled. The smallest structural entity was a 10-man squad. These men were not drawn at random to function together. They were selected for their ability to function as a team, a team of individuals who would think alike and behave alike. Men would be mutually supporting, mutually re-enforcing and instantly substitutable, in a functional sense within the squad. They were able to get into the mindset of one another. Hence, they were perfectly fungible, one for the other. They were not only on the same page; they were singing the same tune with the same voice.

Interchangeability has an extremely important implication. These squads served to reduce if not eliminate uncertainties. The actions ... the behavior ... of the squads was predictable. Hence, they did not need to be tied to other organizational entities through real-time communication systems. The squads could be independent while simultaneously serving higher organizational level such as the 10-squad companies.

Our comments about the squads in the military of Genghis Khan apply equally, as well, to the companies of squads, and the battalions of companies, and so on.

The military forces of Genghis Khan operated along fronts of a thousand kilometers, or more. And, yet, the armies of Genghis Khan enjoyed

unprecedented success. Communications rested on the design of an organization and the mentality of the people comprising the organization. The art of communication rested on the selection and training of people. Subsequently, for example, the squads knew where and when to attack. The leaders of companies knew if and when a squad's objectives had been met.

7.3 Seek a unity of purpose

Genghis Khan experienced the brutality of tribal warfare: killing and subsequent plundering whereby individual members of the military sought to gain their rewards through the seizure of goods and the kidnapping and enslaving of men, women and children. The military model designed by Genghis Khan sought to end such violent, selfish behavior. Following a successful military engagement, the captured goods belonging to the defeated were inventoried before being distributed, on the basis of performance, to the individuals and the hierarchy of organizational entities comprising the army. The basis for gaining rewards was through sharing mechanisms; not by individual thievery.

The goal model sought by Genghis Khan underwent a transformation with time. The metamorphism was subtle: victory could be gained through military conquest or via surrender on the part of the enemy. Of course, it was clear to all members of Genghis Khan's army that the latter approach not only saved the lives of individual members of the military but also preserved the property of the enemy. In either case, Genghis Khan sought to assimilate the defeated enemy into the Mongolian Empire. The killing of the aristocracy simply released their possessions for distribution to the members of the army and the leaders of the Mongolian Empire. The wanton brutality of the military of that era was virtually universal but the Mongols sought to create performance driven reward distribution systems.

Typically, we capture these notions, today, by invoking concepts such as goal congruency and performance driven reward systems. Unfortunately, we have witnessed top management in businesses giving these concepts lip service while fraudulently altering performance indicators. Greed amongst some contemporary business leaders has hampered the integrity of the underlying performance measurement systems. One can readily guess how Genghis Khan would have dealt with such behavior.

7.4 The learning organization ... and more

Genghis Khan saw his world through the eyes of an ignorant boy living amongst people who had only an oral tradition. There was no written Mongolian language used by the tribes. But, by innate intuition or

remarkable insight or astounding intellect, the growth and the outreach of the Mongolian Empire may be attributed to the efforts of Genghis Khan to nourish a learning organization by seeking to learn from experience as well as from others. Such learning came via emulating, assimilating, combining and using the knowledge of others.

The concept embedded in the words not invented here was irrelevant to Genghis Khan. He sought to have his organization learn from others. Why does management of businesses, particularly the management of multinational business organizations stigmatize, pejoratively, the status quo?

Khubilai Khan, grandson of Genghis Khan, was noteworthy for his commitment to the learning function at the level of the individual. In other civilizations of the past, formal learning opportunities had been restricted to the royalty, the religious leaders and the feudal lords. Only in the case of Muslims do we find wide spread learning opportunities for individuals outside the ranks of the privileged few. Contrary-wise, Khubilai Khan built schools so as to provide education to individuals based upon abilities, not position. In effect, he sought to use learning as an elevating leveler and developer of people.

7.5 Learning through failures

The Mongolian Empire reached two limits to its growth: one limit in the West and the other limit in the East.

In the West, modern day Poland and Hungary marked the northwest limits of Mongolian growth while modern day Israel marked the southwest limits.

The expansion into Western Europe was arrested for three reasons: one, the characteristics of the battle field changed as the forests of Europe replaced the vast reaches of the steppes stretching back into Asia. Two, Europeans lacked the products that would have been attractive for trading. Three, the Mongolian armies withdrew as they were compelled to return to Asia at the time of family crises such as the death of a Mongolian leader.

In the southwest the Mongols suffered defeat, in present day Israel, at the hands of an army from Egypt. Again, there were three reasons. One, the Mongols had captured eastern Europeans and sold them, as slaves, where they eventually ended up fighting the Mongols in Israel. Two, the slaves had witnessed the military strategy and tactics employed by the Mongols. Secrecy had been lost. Three, there was the need to return to Asia due to a family emergency.

In the east, the Mongols were defeated by nature when they sailed an armada of ships to Japan. At least 160,000 sailors and warriors lost their lives in the stormy seas ... an unprecedented disaster ... then and now.

What lessons are to be learned? One, there is the issue of core competency as well as the importance of understanding and using an organization's core competency. Two, there is the issue of focus. Stick to one's knitting is an appropriate adage.

The expansion of the Mongolian Empire ended in defeats when the Mongols lost sight of their core competency and they lost the use of their strengths when the environments changed.

8. CONCLUSIONS

The Mongolian Empire rose and fell in a period of less than two hundred years. Yet, their accomplishments are enduring.

The organizational strategy of Genghis Khan was centered on conquest and the creation of sustainable advantage in all commercial activities and ventures. The organizational structure of multiple and similar parts was designed to support coordination and communication over breathtaking distances. The value systems were designed to assimilate people with strikingly different heritages.

With very little paraphrasing the organizational strategy and organizational structure systems of Genghis Khan and the Mongols can be expressed as mirroring and meeting the contemporary needs of multinational business enterprises:

1. To gain and sustain advantage in hyper-competitive markets.
2. To communicate efficiently and coordinate effectively over global distances and real time.
3. To communicate efficiently and coordinate effectively over global distances and real time.
4. To identify, recruit and assimilate nationals in creating and maintaining management teams.
5. To respect differences in religions, cultures and languages in managing diversity.

Genghis Khan addressed and resolved the challenges of creating an Empire by the design and application of decision rules. We recall and note such decision rules as those that follow:

1. Focus on the long run.
2. Develop, nurture and protect information systems.
3. Seek a unity of purpose.
4. Create and sustain a learning organization.
5. Learn through failures.

The success of Genghis Khan may be measured in terms of the lasting value of his accomplishments.

The challenges facing the management of multinational business enterprises today correspond to the challenges faced by Genghis Khan. Moreover, the Mongols' resolution of these issues contains lessons in the form of decision rules that may be applied now. Not surprisingly, it is comforting to note that some of the lessons reinforce contemporary thinking. But, perhaps more interestingly, some of the lessons offer a refreshingly innovative view of the issues. Management of multinational business enterprises would be well served to study the lessons offered by Genghis Khan and the Mongols.

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Chapter 12

DESIGNING FIRMS FOR KNOWLEDGE ACQUISITION AND ABSORPTIVE CAPACITY

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Abstract: To survive, firms must acquire innovation-relevant knowledge from their environment. In spite of the importance of knowledge acquisition to the firm, the organization design field is without either an elaboration of the multiple processes through which firms acquire such knowledge or a field-research grounded set of design guidelines concerning organizational practices likely to result in timely and reliable knowledge acquisition. This chapter describes in detail six processes firms commonly use to acquire technical knowledge and, drawing on literatures in technology management, knowledge management, and human resources management, it further describes field-research based practices that enable firms to make these processes effective. The chapter content contributes to the literatures on organization design, organizational learning, and absorptive capacity.

Key words: Organization design, absorptive capacity, knowledge acquisition, learning, boundary spanning

1. INTRODUCTION

“For most firms, most of the time, their innovations are prompted or enabled by information or knowledge originating outside the firm. . . . Even though any one external source (e.g., competitor, supplier, university) is unlikely to generate a particular element of knowledge needed by a firm, there are so many such sources in the environment that the probability then *no* external source generates the knowledge before the firm does is necessarily very small. . . . Firms possess knowledge, but the amount they possess is minuscule compared with the knowledge already residing in their

industry, in adjacent industries, in the business world, and in society in general” (Huber, 2004: 131-132)

To innovate and survive, firms acquire knowledge from their environment by actuating specific processes at the firm-environment interface, i.e., at the firm’s boundary. Firms’ effectiveness in this regard depends on their including in their design certain practices that foster and facilitate these boundary-spanning, knowledge-acquiring processes.

Two perspectives dominate the literature on organizational boundaries. One focuses on where, by whom, and how well the firm’s work gets done, as in transaction cost economics (Williamson, 1975, 1996) and temporary versus standard workforce employment strategies (Baron & Kreps, 1999; Davis-Blake, Broschak, & George, 2003). The second perspective focuses on how boundaries serve as barriers to, or instruments of, the firm’s acquisition of knowledge that exists in its environment (See Oliver, 1993 for a more fine-grained taxonomy of perspectives on organizational boundaries). Empirical study of boundary spanning personnel as instruments of knowledge acquisition began in the late 1960s (e.g., Allen & Cohen, 1969) and continued into the 1980s (e.g., Brown & Schwab, 1984; Tushman & Scanlan, 1981). More recent work has focused on properties of knowledge that influence its transferability, i.e., stickiness (Szulanski, 1996; von Hippel, 1994) and similarity to current knowledge (Lane & Lubatkin, 1998), and on capabilities of the firm for capturing and using knowledge from its environment, i.e., absorptive capacity (Cohen & Levinthal, 1990; Lane, Salk, & Lyles, 2001; Mowery, Oxley, & Silverman, 1996; Zahra & George, 2002). This chapter is concerned with the second of these two perspectives. It describes field-research based practices, including the implementation and management of infrastructures, that firms can use to make more effective their acquisition of technical knowledge via boundary spanning processes.

Perhaps from the resource-based view of the firm (Barney, 1991; Peteraf, 1993), but more likely simply from straightforward observation of the actions that businesses use for acquiring and exploiting knowledge to achieve competitive advantage, has come the realization that knowledge is a critical organizational resource: “Knowledge has become the key economic resource and the dominant – and perhaps even the only – source of competitive advantage” (Drucker, 1995: 271); “Knowledge has emerged as the most strategically significant resource of the firm” (Grant, 1996: 375). Recognition of this fact contributed to the early and subsequent attention that academics gave to organization learning (Huber, 1991; Levitt & March, 1988), that consultants gave to knowledge management (Rappleye, 2000; Sarvary, 1999), and that academics have more recently given to the process of transferring knowledge via inter-firm alliances (Lam, 1997; Simonin, 1999). In spite of the importance of knowledge and knowledge acquisition

to the firm, the organization design field is without either an elaboration of the multiple processes through which firms acquire knowledge from their environment or a field-research grounded set of design guidelines concerning organizational practices likely to result in timely and reliable knowledge acquisition via these processes.

The purpose of this chapter is to serve as a remedy for these conditions in the short run, and as a point of departure for further research and design efforts in the future. Immediately below, I provide an overview of the chapter. Following this, I examine six processes firms commonly use to acquire new (to them) knowledge from their environment. For each process, I describe organizational practices that tend to ensure the process's effectiveness in terms of timeliness and reliability or that tend to ensure the firm's future access to the knowledge captured. At the end of the chapter, I summarize as organization design guidelines certain of these practices that foster or facilitate knowledge acquisition.

2. OVERVIEW

The organization design variables called out in this chapter are the *practices* that firms use to enhance the effectiveness of these knowledge acquisition processes. Lacking any authoritative listing of knowledge acquisition processes, I chose the six discussed here based on my long-term reading of the academic literature and business press. Although the content of the chapter generalizes to acquisition of knowledge about other business functions, the function on which the chapter focuses is the acquisition of technical knowledge. Acquiring this type of knowledge is more frequently treated in the academic literature and business press than is acquisition of other types of knowledge, and is clearly of great importance. In the chapter, *knowledge* is used broadly, certainly to include information and know-how.

The chapter contributes to the literature on organizational design, but it also contributes to the literature on organizational learning and especially to the learning-related literature on absorptive capacity. *Absorptive capacity* was originally defined by Cohen and Levinthal (1990) as "the ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends is critical to its innovative capabilities" (p.128). Building on a review of the absorptive capacity literature, Zahra and George (2002) re-conceptualized absorptive capacity as "a set of organizational routines and processes by which firms acquire, assimilate, transform, and exploit knowledge to produce a dynamic organizational capability" (p. 186). The chapter differs from most works on absorptive capacity in two ways. *First*, it addresses the fact that it is often critical for firms to acquire

knowledge in a timely manner, e.g., before competitors acquire and exploit this same or equivalent knowledge. Accordingly, the present chapter assumes the need for a proactive stance. It calls on firms to actively and continuously monitor their environment for useful knowledge, an emphasis not typically encountered in the absorptive capacity literature. It further calls for active monitoring be a function of many, if not all, of a firm's boundary spanning personnel who, in effect, should serve as vigilant environmental sensors for the firm. Thus, the chapter explicitly includes proactive search as a component of the act of acquiring. *Second*, in keeping with the chapter's focus on the firm's boundary-spanning units, the chapter examines only knowledge acquisition and distribution, as contrasted with the downstream processes of knowledge transformation and exploitation. These latter processes are typically carried out deeper in the firm; they are not typically carried out by the knowledge-acquiring boundary-spanning units (an exception being service personnel in certain industries, e.g., emergency response team members).

Let us turn now to discussing specific boundary-spanning processes through which firms commonly acquire knowledge. For each process, I first introduce the role of the process in a firm's possible portfolio of processes for acquiring knowledge. I then examine sub-processes (e.g., searching, capturing, and distributing) that firms use to carry out the process. The effectiveness with which the firm's personnel carry out these sub-processes is determined to a considerable extent by the firm's practices with regard to technology targeting, organizational learning and knowledge management, and human resources management. It will be convenient to refer to the unit with primary responsibility for a given practice by the title of the unit's top manager, i.e., respectively, the Chief Technology Officer (CTO), the Chief Knowledge Officer (CKO), and the Vice President – Human Resources (VPHR).

3. KNOWLEDGE ACQUISITION PROCESSES

Most firms acquire environmental knowledge primarily through the sensing efforts of their boundary-spanning personnel or through the routine hiring of knowledge-possessing personnel. Thus we begin our examination of knowledge acquisition processes by examining these two processes.

3.1 Acquiring knowledge through boundary-spanning employees

Our interest is in knowledge acquisition by the firm. But just as organizational learning begins with learning by individuals (Friedman, 2001; Madsen, Mosakowski, & Zaheer, 2003), a good deal of a firm's knowledge acquisition begins with boundary-spanning individuals acquiring knowledge related to their primary function (Dollinger, 1984; Tushman & Scanlan, 1981). "An organization's ability to adapt to environmental contingencies depends in part on the expertise of boundary role incumbents in selecting, transmitting, and interpreting information originating in the environment" (Aldrich & Herker, 1977: 219).

Type of knowledge: Each of the processes described in this chapter have as their purpose acquiring specific knowledge newly identified as needed or otherwise worth acquiring. The unique feature of the process described in this section, however, is that in addition to searching for targeted knowledge, the personnel involved have as an explicit responsibility sensing the environment for *knowledge they recognize as useful but that was not previously known to exist or not known to be available at a feasible cost*. Examples would be new patents or new discoveries described in scientific or technical journals. The following discussion emphasizes this "discovery" function but is intended to encompass also the targeted search function.

Searching and capturing: Because it is intrinsically satisfying, personnel active in functions where technical knowledge is likely to be useful tend to at least casually monitor the environmental sector associated with their work. To make this particular knowledge acquisition process more reliable, in the sense that windows of opportunity for firm to capture and exploit the knowledge are not missed, the CTO must make it a practice to communicate clearly that environmental monitoring *on behalf of the firm* is a responsibility of all technical employees, that everyone is responsible to serve as a sensor of at least his or her own technical sector. Moreover, as a norm-identifying signal and working with the VPHR, he must publicly celebrate exemplary acts of knowledge acquisition and engage also in other practices directed at creating an organizational culture (O'Reilly & Chatman, 1996; Schein, 1992) in which the practice of vigilant *sector sensing* is valued and pervasive.

But employees' sensing of their own sector of interest or responsibility is not sufficient in a fast-changing technical environment. Any specialized sensing structure is constrained by the firm's current understanding of its environment. Reliance solely on pre-assigned scanning responsibilities will result in many technological events going unnoticed (until it is too late to make maximal use of the associated knowledge). To avoid these "it fell

between the cracks” or “it was outside our zone” consequences of relying on specialized accountability, the CTO needs to extend his efforts to create an organizational culture of *eclectic sensing* in which employees feel responsible to scan the firm’s environment for knowledge useful to others in the organization, and to transfer this knowledge to these others. This is, of course, a greater challenge, but is certainly feasible as demonstrated in numerous studies of organizational citizenship behavior (e.g., Bolino, Turnley, & Bloodgood, 2002) and organizational identification (e.g., Dukerich, Golden, & Shortell, 2002).

Creating an organizational culture in which environmental sensing is reliably carried out must be a high priority, but structural initiatives can add efficiency and focus to the search for technical knowledge. A particular form of the process of using boundary spanning knowledge workers for acquiring such knowledge is the practice of maintaining what (Gassman & Gaso, 2004) call “technological outposts.” The location of these off-site organizational components “is determined by technical excellence of an academic institution (i.e., MIT, Boston) or accumulation of academic and company high-tech players in innovative regions. . . . A technology outpost’s mission is to gather sophisticated technological knowledge and to transfer it from centres of technological excellence to the home-base R&D” (Gassman & Gaso, 2004: 7-8).

Distributing: Firms cannot assume that knowledge distribution to other organizational members will take place. In certain situations (cf., Standing & Benson, 2000), employees who acquire knowledge might be motivated not to share it: “The more competitive or otherwise threatening the organization’s internal environment, the more likely it is that the organization’s members will not share with others their most valuable knowledge, as it is the resource most likely to provide them with employment security and organizational rewards”(Huber, 2004: 151). The more frequent reason that knowledge is often not successfully shared, however is that knowledge is “sticky” (Szulanski, 1996: 29; von Hippel, 1994: 429). For example, Gassman and Gaso (2004) note that sensors working in technological outposts, when attempting to transfer their findings to the home-base, often find their communications ineffective due to the “not invented here” syndrome. Consequently firms must be proactive in motivating their sensors to share their new knowledge. To this end, the CTO must use culture-molding practices (cf., O’Reilly & Chatman, 1996; Schein, 1992) to create a culture that motivates employees to engage in the practice of conveying newly acquired knowledge to those who might need it in spite of stickiness of the knowledge or resistance by the targets.

To capitalize on instances where individuals are motivated to distribute knowledge, the CTO, CKO, and VPHR need to make the distribution

minimally effortful. They need to create and employ infrastructures and practices that keep the firm's personnel informed about which units in the firm are engaged in which activities, and also infrastructures and practices that enable individuals to easily distribute knowledge. Infrastructures and practices such as these make valid the belief among the firm's employees that distributing knowledge is not an onerous undertaking. They include, for example, intra-firm communities of practice, technology fairs, newsletters, personnel directories, and user-friendly computer-assisted Knowledge Management Systems.

Table 12-1. Acquiring Knowledge through Boundary-Spanning Employees

Officer with Primary Responsibility for the Practice		
Chief Technology Officer (CTO)	Chief Knowledge Officer (CKO)	Vice-President – Human Resources (VPHR)
Communicate that environmental monitoring on behalf of the firm is a responsibility of all technical employees and that, in particular, everyone is responsible to serve as a proactive sensor of at least his or her own technical sector.	Make knowledge transfer minimally effortful, e.g., create and employ infrastructures and practices that (1) keep the firm's personnel informed about which units in the firm are engaged in which activities, and (2) enable individuals to easily transfer knowledge.	Working closely with the CTO and CKO, create a culture that encourages employees to conveying newly acquired knowledge to those who might need it in spite of stickiness of the knowledge or resistance by the communication targets.
Create an organizational culture in which vigilant <i>sector sensing</i> is valued and pervasive.		Working closely with the CTO and CKO, publicly celebrate exemplary acts of knowledge acquisition or distribution.
Working closely with the CKO and VPHR, create an organizational culture of <i>eclectic sensing</i> in which employees feel responsible to scan the firm's environment for knowledge useful to others in the organization.		

Knowledge acquired through environmental monitoring is typically explicit or easily interpreted and readily communicated by the boundary spanner to those who could use it. Although there will sometimes be resistance to using new knowledge by those to whom it is distributed, because the knowledge recipient's manager and coworkers will often know

that the individual has received the new knowledge and could use it on behalf of the firm, social control will tend to minimize resistance by individuals. When the new knowledge is threatening to the receiving individual or group, however, resistance might occur and must be often be overcome through use of authority.

3.2 Acquiring commonplace knowledge by recruiting industry-standard knowledge workers

In his insightful analysis of knowledge intensive firms, Starbuck (1992) notes that “[I]n deciding whether a firm is knowledge-intensive, one ought to weigh its emphasis on esoteric expertise instead of widely shared knowledge. . . . One should not label a firm as knowledge intensive unless exceptional and valuable expertise dominates commonplace knowledge” (p. 716). While focusing on unusual knowledge, Starbuck (1992) is here acknowledging that all firms also use commonplace knowledge. That is, to make maximum use of the esoteric expertise of their exceptional experts and to pay only standard wages for standard knowledge, all firms employ some workers who possess only commonplace industry-standard knowledge. Further, most firms maintain a sizable number of such employees, who possess the knowledge necessary either to produce the firm’s products (including services) or to direct or maintain liaison with other firms that produce the firm’s products. Some or many of these employees possess, at the time of their hiring, no more – or little more – than the commonplace knowledge used in the firm’s industry.

In contrast are those potential employees who possess the specialized expertise that could contribute to some competitive advantage, to some level of desirable distinction for the firm’s products, processes, or infrastructure. Let us refer to these knowledge workers, whose knowledge is beyond industry standards, as “experts.” We discuss the process for acquiring knowledge by recruiting experts in the next section. Here we discuss acquiring commonplace knowledge by recruiting industry-standard knowledge workers.

Type of knowledge: The knowledge sought is that which is necessary for maintaining and exploiting the firm’s core competencies, or for making incremental improvements in its current products and processes, or for adding to these competencies, products, or processes through the use of knowledge common in the industry. This knowledge, to be readily employed by the firm, must be resident in the minds of the new hires (typically new university graduates or previously or currently employed knowledge workers active in the labor market). While these new hires might later learn on the job much of what they will need to know to be more than marginally

productive, and might even develop into experts, their hiring does not add to the firm's variety or scope of knowledge, only to its stock of knowledge.

Searching: Sources of potential employees possessing commonplace, industry-standard knowledge are widely known in an industry, and search processes for locating them are commonly known routines (e.g., advertising in targeted media, recruiting on campuses). Identifying those job candidates who know an exceptionally large fraction of the standard knowledge the firm desires, or who know it exceptionally well, or who are seen as having the potential to become experts, requires the CTO and VPHR make a significant investment in the candidate-evaluation process. Such investment pays out when these qualifications of the candidate subsequently result in the firm's stock of knowledge growing by a proportion larger than the proportionate increase at the time of the hire.

Capturing: Research demonstrates that the likelihood of successful recruitment is greater if the candidate believes that there is a good fit between her specific career interests, personal life situation, and values, and those associated with the firm and the job for which she is being recruited (Pulaskos, Dorsey, & Borman, 2003). Of course a good fit also reduces unwanted turnover, thus decreasing the resources the firm needs to put into recruiting.

With regard to the candidate's specific career interests, Bierly & Daly (2002) note that the goodness of fit between the individual and the firm is greater if the firm provides a bundle of human resource management (HRM) practices that are aligned with those features of the firm that attracted the candidate to the firm, as contrasted with being a generic bundle of universally thought-to-be "best HRM practices." As an example, Bierly and Daly (2002) call attention to the need for alignment between the firm's HRM practices and the firm's "knowledge strategies," i.e., "the firm's set of strategic choices regarding two knowledge domains: (1) the creation or acquisition of new knowledge and (2) the ability to leverage existing knowledge to create new organizational products and processes" (p. 278). Potential recruits attracted to a firm because of its strong orientation to the first knowledge domain would be especially attracted to a firm with HRM practices that included financial support and/or leave for continuing technical education and a CTO who motivated engagement with the extra-organizational technical entities. In contrast, potential recruits attracted to a firm because of its successful exploitation of its current knowledge would be more attracted to a firm with HRM practices that fostered job movement within the firm and participation in cross-functional teams.

With regard to personal life situations, potential recruits with the responsibility of child care or parental care might be especially attracted to an HRM bundle heavy on work-life benefits while those without such

responsibilities would be attracted to other benefits. Because it is prohibitively expensive to offer generous levels of all HRM benefits and flexibility on all work-life dimensions to all employees, the practice of having potential recruits choose their particular HRM benefits leads to a higher rate of success in recruiting (Barber, 1998) and subsequently to higher levels of organizational citizenship behavior (Lambert, 2000), which leads to more reliable environmental sensing, and – to repeat because of its importance – to greater productivity and lower turnover (Arthur, 1992; Huselid, 1995; O'Reilly & Chatman, 1996; Schein, 1992).

Table 12-2. Acquiring Commonplace Knowledge by Recruiting Industry-Standard Knowledge Workers

Officer with Primary Responsibility for the Practice		
Chief Technology Officer (CTO)	Chief Technology Officer (CTO)	Chief Technology Officer (CTO)
To identify and hire those job candidates who know an exceptionally large fraction of the standard knowledge the firm desires, or who know it exceptionally well, or who are seen as having the potential to become experts, work closely with the VPHR to make a significant investment in the candidate evaluation and recruitment process.	To identify and hire those job candidates who know an exceptionally large fraction of the standard knowledge the firm desires, or who know it exceptionally well, or who are seen as having the potential to become experts, work closely with the VPHR to make a significant investment in the candidate evaluation and recruitment process.	To identify and hire those job candidates who know an exceptionally large fraction of the standard knowledge the firm desires, or who know it exceptionally well, or who are seen as having the potential to become experts, work closely with the VPHR to make a significant investment in the candidate evaluation and recruitment process.

The firm can help the candidate make an accurate goodness-of-fit assessment (beneficial to the firm as well as the candidate) by providing potential recruits with a “realistic job preview” (Barber, 1998: 85). Consequences of engaging in this practice include higher levels of job satisfaction and lower levels of turnover (Barber, 1998), both of which benefit the recruit and the firm, but – at least among less sophisticated or less-well educated – also include reduced probability of job offer acceptance (Barber, 1998).

Historically, investment in employee training and education has led to benefits for the firm (Baron & Kreps, 1999; Pfeffer, 1995). Especially in industries with high levels of downsizing or unwanted turnover, this may no longer be true. In that employees do acquire knowledge on the job, however, and do learn how to function more effectively in the firm as a simple consequence of experience, it is reasonable for the VPHR to engage the firm

in practices that promote organization identification and retention and then to coordinate with the CTO to develop the firm's stock of knowledge through the practice of providing education and training for certain of its knowledge workers.

Distributing: The new recruit's knowledge is embedded in the firm when she begins working. Because her supervisors and coworkers will typically possess technical knowledge very similar to hers, her attempts to use her knowledge are likely to be at least minimally successful immediately, even if she must work as a member of a team of employees having substantial organizational tenure.

3.3 Acquiring knowledge by poaching experts from other organizations

Firms often need new-to-the-firm knowledge that is too sticky to be acquired using the above processes. If the need for such knowledge is anticipated to be ongoing, the process for acquiring the knowledge is often the poaching of experts from other organizations. Although experts are sometimes active in the labor market, either as consultants or as knowledge workers looking for better opportunities, here we will focus on the sub-processes associated with recruiting them from their current employers, as these sub-processes are different from those just discussed in the hiring of standard-knowledge workers. The effectiveness of this approach to knowledge acquisition can vary considerably even when the recruitment process is successful, as is explained below.

Type of knowledge: Knowledge sought through the hiring of experts is that for which the firm anticipates an ongoing need and is outside of the firm's current knowledge stock, but synergistic with it or at least strategically additive in terms of type. The knowledge is often scarce or novel and tends to be sticky either because it is partly embedded in the expert's previous employer or because the hiring firm's personnel do not have sufficient absorptive capacity.

Searching: The CTO and other upper level managers conduct active search for such experts and direct relevant boundary spanning personnel to be vigilant for, and to report about, likely candidates. But for obvious reasons, newly hired experts could be threatening to some employees, so diligent search or whole-hearted cooperation in the hiring process by all concerned is not guaranteed. Extensive research shows that such firm-benefiting actions are much more likely to be forthcoming if the firm uses "*High Performance Work Practices*, including comprehensive employee recruitment and selection procedures, incentive compensation and performance management systems, and extensive employee involvement and

training” (Huselid, 1995: 635). To fill out this list, Pfeffer (1998: 64-65) would add a high level of “employment security,” and “extensive sharing of financial and performance information throughout the organization” (Pfeffer, 1998: 64-65). A firm’s use of High Performance Work Practices, largely determined by the orientation and influence of the VPHR, has been shown to lead to high levels of organizational citizenship behavior (OCB), low levels of unwanted turnover, and high levels of productivity (Arthur, 1992; Huselid, 1995; Pfeffer, 1998).

Table 12-3. Acquiring Knowledge by Poaching Experts from Other Organizations

Officer with Primary Responsibility for the Practice		
Chief Technology Officer (CTO)	Chief Knowledge Officer (CKO)	Vice-President – Human Resources (VPHR)
Conduct active search for experts who possess knowledge for which the firm anticipates an ongoing need and is outside of the firm’s current knowledge stock, but synergistic with it or at least strategically additive in terms of type and, in addition, direct relevant boundary spanning personnel to be vigilant for, and to report about, likely candidates.		Working closely with the CTO, help the candidate make an accurate goodness-of-fit assessment by providing potential recruits with a “realistic job preview.”
Working closely with the CKO, create conditions in which the firm’s current personnel acquire from the new hire his knowledge and learn how to use this knowledge.		In contrast with a standard bundle of thought-to-be universal “best human resource management (HRM) practices,” and to the extent feasible, provide candidates/personnel with HRM practices that fit the candidate’s personal life situation and professional interests.
		Engage the firm in practices that promote organizational identification and retention.

Capturing: Most knowledge workers having particularly valuable expertise work either as contractors or are well cared for by their current employer. Therefore, effective recruiting is the key to hiring them. The likelihood of successful recruitment is, of course, greater if the firm provides above-market compensation (Barber & Bretz, 2000), but a “win the bidding war” recruitment strategy is costly in the short run and can be costly in the

long run because it creates expectations on the part of the recruit that can often be better met by the next firm that perceives, at a future moment, an even higher need for the “new” employee’s expertise. Oftentimes more important for these seasoned and in-demand workers is the fit between themselves and the firm recruiting them. Thus the matter of fit, examined above for standard-knowledge workers, applies here as well, and perhaps more so.

With respect to capturing the new recruit’s knowledge, as pointed out above, the most positive result of a successful hire occurs when the firm’s current personnel learn from the new hire how to use the new-to-the-firm knowledge. This outcome is most likely when the knowledge of the firm’s current personnel is not doctrinaire, when the current personnel are self-motivated to learn from the new hire, and when their work and that of the new hire are interdependent (Song, Almeida, & Wu, 2003; Tzabbar, Silverman, & Aharonson, 2005).

Distributing: As noted above, the effectiveness of knowledge acquisition from the newly recruited experts can vary considerably. The least useful result occurs when the hired expert becomes entirely involved in the firm’s existing technology and does not continue to practice his own art. In such an instance, there is an unexploited increase in the scope of the firm’s knowledge stock (a knowledge stock increase that generally atrophies in its potential usefulness) and there is no qualitative change in the firm’s performance. This outcome is especially likely when the firm’s existing technology is well ingrained, as per the socialization theory developed by (March, 1991), or when the expertise of the new hire is not far removed from that of the current personnel (See Song et al., 2003 for findings supporting both of these explanatory factors in the semiconductor industry) The most positive results occur when the firm’s current personnel acquire from the new hire his knowledge and learn how to use this knowledge. In such an instance, the aggregate of the new hire and the newly learned personnel come to constitute a new center of excellence/competence for the firm and/or they successfully employ their new knowledge to leverage the firm’s existing knowledge in ways that lead to higher levels of firm performance. An in-between result occurs when the new expert continues to work in the technology that she brought to the firm, but little or none of her knowledge is distributed to other of the firm’s personnel [an outcome observed by (Tzabbar et al., 2005) in their study of patent development in the biotech industry]. If the firm is able to leverage the expert’s knowledge even without its being distributed to any of the firm’s other personnel, the firm’s performance increases, but at some risk due to the fact that it is so highly localized and, of course, with some loss of opportunity for the development of the firm’s other knowledge workers. Addressing these several matters

involves knowledge management practices and requires the joint efforts of the CTO and CKO.

3.4 Acquiring knowledge from consultants

In many instances, firms have a need for knowledge that is deeper or more leading edge than is the knowledge available within the firm. If the need is anticipated to be infrequent, most firms will choose to engage a highly qualified expert as a consultant to supply the knowledge on a per occasion basis (Dawes, 2003; Sarvary, 1999). Because such knowledge is sticky, acquisition of the knowledge by the firm generally takes place only if the relationship is of a significant duration. If the need is expected to recur, firms often contract with the expert consultant or the consultancy for repeated service. If this occurs, the relationship can become very similar to a knowledge-sharing alliance partnership such as described below, as the knowledge-providing partner, the consultancy, also attempts to acquire knowledge from the client in order to increase its knowledge stock.

Type of knowledge: The knowledge sought is that outside of the firm's core competence and for which the firm has a short-term or infrequent need. Its stickiness is a function of the consultant's willingness to share and the absorptive capacity of the firm's employees with whom the consultant works.

Searching: Active search for the appropriately qualified expert or consultancy is usually carried out by the manager whose unit needs the knowledge.

Capturing: If the need for the knowledge is expected to recur and if no agreement has been reached to the contrary, the client firm's personnel who interact with the expert should attempt to acquire from the expert(s) the knowledge needed. Whether they succeed depends particularly on the two aspects of stickiness noted just above. The expert will also attempt to learn, by practicing his craft in the task context of the client firm. Rarely do such experts or consultancies attempt to steal proprietary information, as most contracts make such action extremely risky in terms of legal penalties. In addition, the loss of the service provider's professional reputation is also very costly in the small world of expert consultants.

Distributing: The knowledge captured by the firm's employees tends to be needed and used only by those members of the relationship who are actively engaged in solving the problem. Hence whatever knowledge is captured tends to be stored only in the minds of the employees in ongoing contact with the consultant and not to be further distributed within the firm. This is an undesirable situation for the firm in that it becomes vulnerable to loss of knowledge through turnover. Consequently, the CTO and CKO are

well advised to make it a practice to motivate these few employees to enter what they have learned into the firm's Knowledge Management System or embed it in the minds of the firm's other relevant personnel, and the VPHR is well advised, with respect to these same employees, to act on those factors that lead to employee retention (Lee, Mitchell, Sablinski, Burton, & Holtom, 2004).

Table 12-4. Acquiring Knowledge from Consultants

Officer with Primary Responsibility for the Practice		
Chief Technology Officer (CTO)	Chief Knowledge Officer (CKO)	Vice-President – Human Resources (VPHR)
Conduct active search for experts who possess knowledge that is deeper or more leading edge than is the knowledge available within the firm and for which the firm has a short term need or for which the need is anticipated to be infrequent or readily learned by the firm's current personnel.	Because whatever knowledge is acquired from the consultant tends to be stored only in the minds of those employees who are in ongoing contact with the consultant and not to be further transferred within the firm, motivate these few employees to enter what they have learned into the firm's Knowledge Management System and/or embed it in the minds of other of the firm's relevant personnel.	Because whatever knowledge is acquired from the consultant tends to be stored only in the minds of those employees who are in ongoing contact with the consultant and not to be further transferred within the firm, work closely with the CKO to engage in practices with these employees that promote organizational identification and retention.
If the need for the knowledge is anticipated to recur, work closely with the CKO to create conditions in which the firm's current personnel acquire from the consultant his knowledge and learn how to use this knowledge.		

3.5 Acquiring knowledge through acquisitions

Some of a firm's knowledge is deeply embedded in its systemic routines, which themselves are entirely understood, if at all, only by some aggregate of multiple employees. Further, the "understanding" of some of these employees is often tacit, having been learned through experience rather than tutoring. Acquiring such embedded knowledge from another firm is impossible with any of the processes discussed thus far. It can be obtained only through acquisition.

When firms seek a significantly large subset of knowledge that is embedded in another firm, such that the knowledge cannot be purchased, learned by observation, or traded for with an exchange, as when the knowledge is a competence lodged in the other firm's routines and the minds of a cadre of its workers, firms seeking this knowledge often turn to acquiring the firm possessing the knowledge (Ranft & Lord, 2001; Zollo & Singh, 2004). Because making acquisitions to acquire knowledge is a costly and risky endeavor, it should generally be undertaken only when the knowledge sought is seen as strategically important to the firm.

Table 12-5. Acquiring Knowledge through Acquisitions

Officer with Primary Responsibility for the Practice		
Chief Technology Officer (CTO)	Chief Knowledge Officer (CKO)	Vice-President – Human Resources (VPHR)
Conduct active search for firms or units of firms that possess knowledge outside of the firm's current knowledge stock and for which the firm anticipates a strategic need, and direct relevant boundary spanning personnel to be vigilant for, and to report about, likely candidates.		Attempt to retain all those members of the acquired firm who are integrally linked to the knowledge that motivated the acquisition. In contrast with a standard bundle of thought-to-be universal "best human resource management (HRM) practices," and to the extent feasible, provide candidates with HRM practices that fit the candidate's personal life situation and professional interests. Engage the firm in practices that promote organizational identification and retention.

Type of knowledge: The knowledge sought is embedded in another firm's routines or aggregate of multiple interacting personnel such that the whole is more than the sum of the parts and some of the parts are inexplicit. Such knowledge is generally rare and valuable (Barney, 1991) and for several of the reasons described by von Hippel (1994) and Szulanski (1996), immensely sticky.

Searching: The CTO and other upper level managers conduct active search for firms, or units of firms, possessing the knowledge sought, and direct relevant boundary spanning personnel to search for, and to report about, likely candidates.

Capturing: Research on transactive memory (Faraj & Sproull, 2000; Lewis, 2004) makes clear that – if the members of the cadre integral to the embedded knowledge had worked together interactively for any length of time, as is commonly the case in when dealing with embedded knowledge – the loss of even one cadre members can diminish the usefulness of the newly hired cadre by more than the loss of those personnel who do not join the acquiring firm. Thus every effort must be made to hire the key group of personnel intact. To this end, an intense effort must be made to retain all those members of the acquired firm who are integrally linked to the knowledge that motivated the acquisition. Especially because some members of the cadre might prefer a new work environment much like the one they had before the acquisition, use of a flexible bundle of benefits and other HRM practices described earlier with regard to hiring experts will often be necessary.

Distributing: Several of the issues and knowledge management practices discussed above with regard to distributing the knowledge of newly hired experts are applicable to distributing the knowledge of the cadre of new employees who are conveying the embedded knowledge of their previous employer, and need not be repeated here.

3.6 Acquiring knowledge through alliances

When the knowledge a firm needs is possessed by another firm that is unavailable or unsuitable as an acquisition, the knowledge-needing firm often engages the knowledge-possessing firm in an alliance partnership that enables each firm to learn some of what the other knows (Khanna, Gulati, & Nohria, 1998; Mowery et al., 1996). A nearly industry-wide example of this approach to knowledge acquisition occurred when, beginning in the late 1970s, “many pharmaceutical firms created alliances with biotech firms to keep abreast of new technological developments and to create opportunities to learn the new drug discovery capabilities” (Lane & Lubatkin, 1998: 466).

Type of knowledge: The knowledge sought is embedded in another firm not appropriate as an acquisition but appropriate as a partner in a knowledge sharing alliance. It is new to the firm, somewhat sticky, and viewed as sufficiently critical that the expensive process of acquiring it through an alliance is thought to be appropriate.

Searching: The CTO and other upper-level managers actively search for appropriate partners and sensitize relevant personnel to be vigilant for and to report on likely candidates. Once the partnership is established, sensing is carried out by the knowledge workers of each firm who are most familiar with the type of knowledge needed from the other firm. In the great majority of instances, these personnel, from both of the partners, are working jointly on a project of mutual benefit to the two (or more) firms.

Capturing: While appreciating that much of the knowledge recognized during the life of the alliance as potentially useful will not have been anticipated, and that much of the knowledge seen as useful will become available on an ad hoc basis, firms learn more if they have as a practice the routine development of a plan that identifies the specific knowledge sought and the processes to be used in its acquisition (Mowery et al., 1996). Management of this practice would be a cooperative effort between the CTO and the CKO. Moreover, if the alliance partners work together to help effectuate each other's plan, this can lead to more knowledge transfer and can greatly reduce the likelihood that the partnership will fail before the partnering firms have achieved their goals.

Table 12-6. Acquiring Knowledge through Alliances

Officer with Primary Responsibility for the Practice		
Chief Technology Officer (CTO)	Chief Knowledge Officer (CKO)	Vice-President – Human Resources (VPHR)
Actively search for appropriate alliance partners and sensitize relevant personnel to be vigilant for and to report on likely candidates.	Working closely with the CTO, develop a plan that specifies and implements the processes to be used in the knowledge acquisition.	
Identify the knowledge sought, and communicate this to the CKO and those boundary-spanning personnel interacting with the alliance partner.		
To the extent possible, work with the alliance partner's CTO to effectuate each other's knowledge transfer plan.		

Not only must the personnel involved at the interface of the firms work to sense and capture the knowledge sought, but they are also often tasked with distributing it to other parties in their firm who could potentially use it. As we noted above, however, knowledge distribution is not easy. Besides the knowledge possibly being sticky, either because it is tacit or because the potential receiver does not have the background knowledge to absorb it, the sensor personnel will occasionally encounter the not-invented-here syndrome just as is sometimes the case when such personnel attempt to transfer knowledge from a listening outpost, as noted above. Indeed, the circumstances of the two situations are similar in many respects.

Distributing: The boundary-spanning personnel capture the knowledge in their minds, and in this sense it is embedded in their firm. But more is hoped for. In particular, if the intra-organizational knowledge transfer described just above takes place, and if the receiving personnel make sufficient use of it, it will become embedded not only in their minds but also in the firm's routines. Beyond this, the boundary spanning personnel involved at the alliance interface will be even more effective as a knowledge acquisition unit if the firm has a Knowledge Management System and the personnel involved emplace much of what they learn in it.

4. INFORMING THE THEORY OF ORGANIZATION DESIGN

Organizations and other living systems function by carrying out processes, one of which is acquiring knowledge from and about their environment (Miller, 1972; Scott, 2003). The dominant perspectives on organization design deal with the specification of artifacts for facilitation, enactment, and control of these processes. Examples of these artifacts are boundaries (Oliver, 1993; Williamson, 1975, 1996), resources (Barney, 1991; Peteraf, 1993) – especially human resources (Baron and Kreps (1999), and inter-unit connections, either among or within organizations (Ashkenas, Ulrich, Jick, & Kerr, 1995; Quinn, 1992; Quinn, Anderson, & Finkelstein, 1996). While not questioning the usefulness of the artifact-specification perspective on organizational design, this chapter demonstrates that field-research based management practices are a necessary consideration in the facilitation, enactment, and control of a critical organizational process. By doing so it calls attention to management practices as a necessary consideration in any broad-scope theory of organization design. In particular, if we modify the chapter to deal with the acquisition of *information about environmental change, threats, or opportunities*, we would see the necessity of considering management practices when applying contingency theory

(Donaldson, 2001) in the operational design of an organization (Huber, 2004; Chapter 3). This thought leads us to the practice of organizational design.

5. INFORMING THE PRACTICE OF ORGANIZATIONAL DESIGN

This chapter describes specific processes firms commonly use to acquire technical knowledge. By demonstrating (1) the usefulness of field-research based management practices for effectively actuating these processes, and (2) the reasonableness of functionally based specialization of responsibility and cross-function integration of efforts (themselves “management practices”), the chapter calls attention to management practices as a necessary consideration when attempting to facilitate, enact, or control those organizational processes in which employee expertise and cooperation are variables.

6. CONCLUSION

I have discussed six processes that firms use to acquire technical knowledge from their environments, and certain sub-processes that they use to carry out these processes. I also described specific management practices that enhance the effectiveness of the knowledge acquisition processes. Prescribing the enactment of these practices, and identifying the organizational units primarily responsible for the enactment, amounts to designing those aspects of a firm that foster or facilitate the knowledge acquisition processes examined. The relationships among the processes, practices, and organizational units responsible for the practices are shown in tables 12.1 – 12.6.

This chapter has three unique features. One is its explication and elaboration of six processes involved in the acquisition of technical knowledge, the sub-processes involved in each, and the prescribed practices that, in effect, constitute the organization design variables. In doing so, the chapter adopts the stance that organization design can, in certain contexts, advantageously focus directly on management practices, as contrasted with focusing on structures for managing processes, or on other artifacts. A second unique feature of the chapter is its use of multiple research literatures, i.e., the literatures on technology management, knowledge management, and human resources management, when identifying relevant

management practices. The third feature, articulation of the need for cooperation and shared leadership among the firm's Chief Technology Officer, its Chief Knowledge Officer, and its Vice-President – Human Resources when putting the respective literature-based practices into effect, is a consequence of examining the multiple literatures. Together, these features enable the chapter to contribute to the literatures on organization design, organizational learning, and absorptive capacity.

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Chapter 13

MODELS OF CHANGE, ORGANIZATIONAL REDESIGN, AND THE ADOPTION OF WEB TECHNOLOGIES

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Abstract: Theories of organizational design provide limited guidance in the ongoing adjustment to web technologies. There is also a gap between the rather sophisticated theories of change that analyze how and why change occurs and the practice-oriented focus of the implementation and guidance of actual change processes. This chapter attempts to close this gap by illustrating how recent developments in change theory may be useful in understanding the actual adoption and implementation of emergent Internet technologies. Empirically, the paper draws on two surveys of Internet-technology adoption by Nordic banks and manufacturers. The theoretical point of departure is Van de Ven and Poole's (1995) identification of four basic types of change processes: life cycle, teleological, dialectical, and evolutionary change. These theories all encapsulate planned organizational change in that they can explain actual processes and outcomes, including how organizational change emerges and develop in adapting to Internet technology based on characteristics of organizations at different stages of Internet adoption. They may also help to explain the apparently small impact of participation. In a practical perspective, they can enrich the perceptions of participants in actual projects. On this basis we argue for more comprehensive diagnostic models of organizational change.

Key words: Change Models, Implementation, Innovation Adoption, Organizational Change, Organizational Redesign, Participative decision making, Web Technology

1. INTRODUCTION

Implicit in organization design theory is a model of adaptation. Change in environmental factors may lead to a misfit between structure and

environment which in turn make organizations change to another fit (Donaldson, chapter in this volume). However, other theories have given adaptation processes more attention. How are external impulses for change transformed into actual changes in an organization and how can the change processes be analyzed? This is a major questions that organizational researchers have tried to answer from many different perspectives. Even when the focus is limited to technology and administrative changes, the literature provides diverse descriptive and prescriptive views ranging from innovation diffusion to adjustment of administrative procedures. These views may emphasize deterministic technology-push approaches as well as voluntaristic and strategic approaches.

Theories of organization design have taught us that the alignment of structural elements, technology, and environment may be important to organizational performance. Despite criticisms of neglecting processes of voluntary actions and social construction, organizational contingency theory has provided empirical evidence of the validity of several major relationships between contingency factors and structure (Donaldson, 1995). However, the design of organizations is never a result of a once and for all architectural decision. Design of organizations is mainly a result of redesigning processes where changes take existing structures and contingencies as its point of departure. Thus, both proper diagnosing of organizational problems, as well as the process of connecting diagnoses to change, become central in establishing a desirable fit.

By taking this focus this article is closely in line with Snow, Miles, and Miles (chapter of this volume) who recommend redesign and organizational change as important parts of initiatives for organization design research. Neither traditional design theories nor traditional theories of organizational change have offered more than crude prescriptions of the management of the transitions to new organizational forms. In textbooks on organizational change and development open-systems models appear as rather simple diagnostic models (e.g. Cummings and Worley, 2005). This gives a practical enumeration of factors to take into account but in order to explain complex changes more complex models are needed. In particular, the link between levels in multilevel approaches needs more attention. For example, how do upper level changes affect changes in specific operating procedures and what role does participation play? Furthermore, change may be seen from several different perspectives and shouldn't it be possible to exploit the multiple contributions from different theoretical approaches?

The article shows that the interplay between new information technology and organizational change can be analyzed from a comprehensive range of theoretical perspectives without completely losing theoretical parsimony or practical relevance. This is illustrated by examples of the adoption and

implementation of Internet technologies by Nordic banks and manufacturers. We will especially argue against overly narrow models of employee participation, since participation can be seen as part of complex change and planned change processes. Participation can be theoretically encapsulated by general models of organizational change, and this may improve the diagnostic models that guide practitioners in implementing planned change.

The point of departure is Van de Ven and Poole's (1995) combination of four basic types of theories regarding change processes: life cycle, teleological, dialectical, and evolutionary change. In more recent work, Poole and Van de Ven (2004) further advocate the necessity of a complex theoretical approach to research into organizational change. Our approach is guided both by this framework and by the aim of attaining a comprehensive overview, but our focus is on planned change and how emergent information technology is adopted and implemented. This approach implies some intentional choices favoring simplification and parsimony; the incorporation of recent information system research also makes the analysis less abstract.

2. THE ROLE OF IT AND EMPLOYEE PARTICIPATION IN ORGANIZATIONAL CHANGE THEORIES

Organizational change is complex. Even small changes are difficult to explain without recourse to a wide range of explanatory variables, and several theoretical perspectives are often used in analyzing a single process of change. The resulting theoretical fragmentation has encouraged creative management scholars to use multiple theories and concepts in explaining how organizations change, at the expense of a common framework (Van de Ven and Poole, 1995).

However, in an attempt to integrate alternative theories of change, Van de Ven and Poole (1995) suggest a framework that should make it possible to move towards stronger *and* more parsimonious explanations of change by combining fundamental theories. They identify four ideal types of process theories of organizational development and change based on a comprehensive literature review: life-cycle, teleological, dialectical, and evolutionary theories. Each of these types represents well-founded traditions and some internal consistency, but differ in terms of "motors of change" (event sequences and generative mechanisms), unit of change, and mode of change (see Figure 13-1).

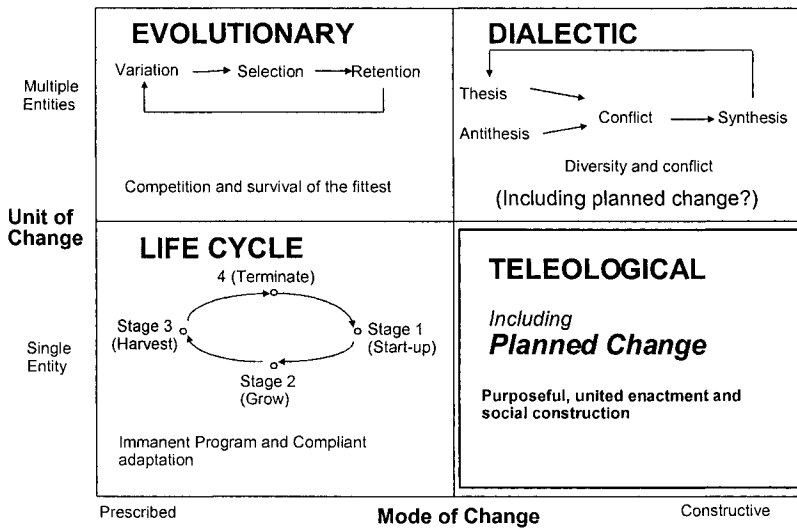


Figure 13-1. Process Theories and Planned Change (Adapted from Van de Ven and Poole, 1995)

All four types of theories have been applied, either singly or in combination, in explaining IT-related organizational change, and from this field there are illustrative examples.

Life-cycle theories are characterized by a single-entity view of change and regard change processes as prescribed and mainly driven by immanent factors. This perspective has been used to explain both technological innovation at the industry level and system development at the organizational level (Nolan, 1973). Use of the word “mature” to describe the use of information systems signals that there is an underlying logic that determines how the process moves through certain stages towards an end state. The seemingly faceless practitioners play only a minor role by helping the process through the stages. *Evolutionary theories* regard change processes as determined by impersonal competitive forces. In a repetitive sequence of variation, selection and retention only the fittest entities survive. For example, organizational arrangements for centralized or decentralized computing are to some extent a result of trial and error processes (King, 1983) and to be deployed the arrangements have to be considered sufficiently efficient. *Teleological theories* ascribe importance to purposeful activities based on common goals. Development and learning drives the

process towards a final state. In the systems literature this perspective does not merely represent a historic and naïve view of system development. In more elaborate, though less ideal, versions this perspective provides insight into the action-driven processes of information system adoption in which top management play crucial roles in enacting environmental demands and facilitating learning processes (Huber, 1990; Weick, 2001). The single-entity perspectives of the teleological theories give them properties close to those of the rational actor model, and these properties may explain IT adoption. However, they are less useful in explaining a firm's success or failure in infusing IT into its work systems. One explanation is that IT development is often a political process (Cooper and Zmud, 1990). This fact is captured by *dialectical theory*, which stresses that at least two entities are involved in any change process. Thus conflicts and contradictory values describe the process, and the outcome becomes a result of power struggles.

These four types of theories also provide the elements of more complex models. Thus, Van de Ven and Poole (1995) consider Weick's (1979/2001) theories on organization to represent the interaction of life-cycle, teleological, and evolutionary motors. First, Weick's process of equivocality reduction is basically a life cycle consisting of enactment, selection, and retention stages. There is also room for teleological motors since participants choose their own adaptations and retentions. This short-term process is repeated in different versions. In the longer term, however, evolution results in the selection and retention of fewer practices. The relevance to information technology is obvious. In another work, Weick (1990) has explicitly treated "technology as equivocal," and drawn attention to the sense-making of technology at the micro level as key to understanding the organizational impact of new technologies.

We focus here on the relationship between these general models of change processes and the practice of change agents in planned change. Our approach treats individual and group participation in decision-making fora as the means by which planned change mediates motors operating at different levels. Moreover, participation is key to multilevel analysis as it may serve as a filter of inter-level impact. At one level, participants may literally act as representatives of forces and motors from other levels or as coopted elements of threatening forces. Participation is both a process and a state. It is fundamentally formal structure that defines individuals' access to authority; moreover, it appears to be part of the teleological motor. However, whether or not specific participation creates unity or conflict is a matter for empirical research (see Figure 13-2).

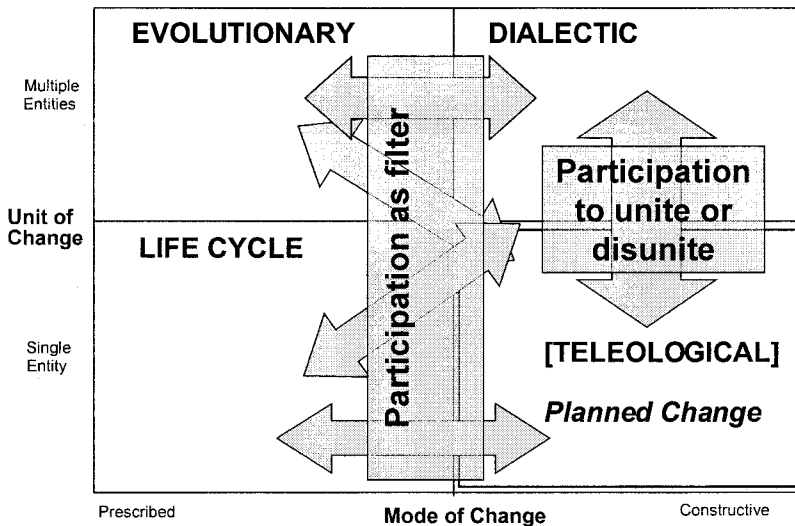


Figure 13-2. Process Theories and Participation

When we close in on IT and planned change it becomes possible to draw on rather specific, applied theories of organizational development and change and of information systems implementation. Though these research traditions are often very focused and action oriented, they also have theoretical shortcomings.

First of all, the IT literature seems biased, often overly optimistic about the spread of new information technology. For instance, emergent technologies seemed to make telecommuting cheaper, more reliable, and easier for a number of people. The number of telecommuters has, nevertheless, always been smaller than anticipated (Orlikowski and Barley, 2001). Predictions for Internet-related technologies have also been very optimistic, though the pace of the actual adoption of many such technologies has been slower than expected. Although the revolution did come, it came barely fast enough to fulfil the expectations of optimistic commentators. Recent findings concerning Internet banking also contradict the prediction that small late adopters would be outperformed by large first movers (Lüneborg and Flohr Nielsen, 2003).

Nevertheless, we are indebted to information system research, for example, for specifying the interplay between organizational and technological change. As pointed out by Orlikowski and Barley (2001), most organizational theorists have conceptualized technology in abstract terms. In

early attempts to take technology into account in contingency theory, technology was treated deterministically and without proper attention to human agency. However, the main problem compared to information system research may be the neglect on the part of organizational research to consider the specifics of a given design. In attempting to understand the possible effects of communication technologies, neglecting the specific properties of a technology is a problem. Organizational theorists of various orientations may have been conceptually consistent, but they have not developed theories of technological change that adequately bridge the physical and the social (Orlikowski and Barley, 2001).

Information system practitioners early on recognized the importance of involving users as participants in system development and implementation processes. Theoretically, this recognition is connected to an emergent challenge to the assumption that technologies can themselves *cause* organizational structure and behavior. Technologies are better viewed as occasions that trigger social dynamics, which in turn may lead to both intended and unintended changes in organizational structure (Barley, 1986). IT is not a completely fixed constraint. Users and system developers may exercise considerable influence over IT because applications are shaped and reshaped according to user demands (Orlikowski and Robey, 1991).

Still, user participation in information system implementation has long been biased towards technical features. Computer system development was initially dominated by efforts to solve hardware problems and later software bottleneck problems; since the late 1980s, though, it has been dealing with user-related problems (Friedman, 1989). Most development methodologies, however, have not addressed organizational issues except by means of a socio-technical design approach. Furthermore, standardization and open systems have made many technical issues less controversial for users—much computer technology is simply becoming invisible to them. This makes organizational issues, i.e., the adjustment of administrative procedures, the most important. On this basis it has been argued that these often more controversial issues must be put on the agenda if users are to participate in the organizational changes necessary for achieving the benefits of new information technology (Flohr Nielsen and Relsted, 1994).

The literature concerning organizational development has also been accused of being narrow and normative (Huber et al., 1993). It is said to focus on process intervention and on improving the quality of working life of the organizational members, but to neglect the wider set of factors associated with organizational change. People and processes are important, but so are the characteristics of an organization's environment, structure, strategy, and performance (Huber et al., 1993). It must be admitted, though,

that diagnostic models focusing on the organizational level may bring this broader set of factors into consideration.

The more or less implicit assumption underlying organizational development and change in practice is that the participation of employees in a change project increases the probability of a positive outcome. It is recognized that the challenge is to make participants feel a sense of ownership of data and decisions. There is a tradition in the prescriptive literature of advocating collaboratively developed action plans for diagnosing and intervening in organizations (Cummings and Worley, 2005). In the early steps of a change project, congruence between espoused and actually applied theories is desired so as to reach a common understanding of the models that guide the selection of diagnostic information and to arrange the information into meaningful patterns. This may provide guidelines for consultants and other change agents for planning a participative process (Tichy, Hornstein and Nisberg, 1976).

Empirical evidence concerning the impact of various interventions on performance is often mixed, as is evidence concerning the impact of participation. Hence, in analyzing the consequences of participation it is important to note how narrowly the concept is defined, because empirical evidence regarding the impact on employee satisfaction and performance may be heavily dependent on this definition. A review of the literature concluded that participation has only a moderate, albeit positive, impact on performance (Wagner, 1994); it could be argued that the weakness of the reported effect is only to be expected, because participation is defined narrowly as “a process of influence sharing.” Reported effects would probably have been stronger if appropriate rewards, communication practices, training, and selection practices were included (Ledford & Lawler, 1994). The concepts of participation and empowerment defined in broader terms may thus be relevant explanatory factors.

Because of the shortcomings of traditional comparative studies it may be appropriate to include the dynamic perspective of organizational theory. This could be done even in the comparative analysis of cross-sectional data as illustrated below. It focuses on Internet technologies that provide a common impulse to several organizations but depart from the organizations' established systems and in turn open up new linkages to customers and between departments.

3. EMPIRICAL EXAMPLES: ADOPTION AND IMPLEMENTATION OF INTERNET TECHNOLOGIES

In order to illustrate how the change motors seem to work and how participation may intervene we draw on two studies of the adoption and implementation of Internet technology (Flohr Nielsen, 2003; Flohr Nielsen et al., 2005). The empirical method is close to that suggested by Van de Ven and Poole (1995), since rich data are collected and canvassed for alternative motors of change. Very rich data that may derive from several sources should be collected to enable the identification of specific process features. However, it will be more difficult to generalize from such diverse data that normally would be gathered in case-studies and small samples. Our data was mainly collected via a survey covering several aspects of the adoption and implementation processes, since the aim of the study was to analyze comparable projects in a large sample. This provides us with data collected in a structured way that allow for some generalization, but are still rich enough to permit the discussion of normative implications and to be related to motors of change. The process perspective is reflected through comparison of organizations at different stages of adopting and implementing the same technologies. The questionnaires cover issues such as market information, management control, market orientation, cooperation, organizational goals, performance, and participation.

The purpose of the first study, of Internet banking in the Nordic countries, was to examine how a broad range of factors affect the adoption pattern and firm-level performance in the banking sectors of Denmark, Finland, Norway, and Sweden. Based on survey data from IT managers in 278 banks, the study classified adoption patterns. Data were also gathered from the marketing managers in the banks, letting us analyze personal matched pairs for some variables, including information on the participation of key persons.

Similarly, the purpose of the second study, of the adoption of Internet-based marketing channels by Nordic manufacturers, was to trace the adoption drivers of early adopters. Survey data from marketing managers in 1163 Danish, Finnish, and Swedish manufacturers form the empirical basis.

Details of the findings based on structural equation modeling are reported elsewhere (Flohr Nielsen, 2003; Flohr Nielsen et al., 2005) indicating how organizations with successful adoptions differ from late adopters. The results indicate both structural and attitudinal explanations to an early adoption of the Internet technologies. Both market sensing and technology sensing capabilities as well as the willingness to cannibalize older investments seem to be important.

Below we report on a reinterpretation of the data, based on the Van de Ven and Poole framework, focusing on the possible consequences of participation in planned change. The benefits and limitations of reinterpreting these studies can be clarified by the distinction between variance and process models (Mohr, 1982). Variance models are ambitious in trying to connect specific variables. Related analysis, such as correlation analysis or structural equation modelling, can help answer questions on the specific influence of different variables. From this perspective, our cross-section data show associations between predefined variables, especially the data indicate possible antecedents of adoption of Internet technology in answering the question: what separates early adopters from late adopters? Process models including the change models demand more knowledge of the process to predict outcomes; the level of single predictor variables is not sufficient. Consequently, ideal methods should be longitudinal and based on the collection of richer data. Thus, our intention is to illustrate a line of reasoning by referring to characteristics of early or successful adopters and hereby indicate a theoretical specification that may lead to deeper process studies in the future.

3.1 Life-cycle motors

Apparently, a life-cycle motor is operative in these projects. At least to some degree there are institutional rules or programs that determine a prescribed sequence of activities. This may be indicated by the simple fact that almost all of our respondents were able to connect their own Internet projects to one of the following stages: under consideration, planned, under implementation, implemented, and successfully implemented. There is also some succession in the way features are normally implemented: first, simple Internet banking features, then product and service ordering via the Internet, then perhaps on-line securities trading, etc. However, our data can at most reveal *normal* succession, and there is certainly room for exceptions and anomalies. It is almost impossible to say whether process innovation precedes or follows product innovation; even at the branch level, the diffusion of innovation is too complex an interactive phenomenon to permit such a judgment to be made (Abernathy and Clark, 1985). Nevertheless, there *are* regularities in the sense that the study identifies antecedents to the adoption, implementation, and integration of Internet-banking applications.

Teleological motors

Adoption of Internet technologies is to some extent driven by purposeful action. At the level of single organizations the actors are key people in management, typically IT or marketing managers, who formulate goals that influence the process. The end goal may be the retention and attraction of

profitable customers, and the path may go through meeting these customers' needs for features such as user-friendly technology and convenience. The goal setting may be part of a strategy-formulating process, and the chosen path may depend on the available resources. For instance, the decision makers of small Nordic banks often choose to avoid acquiring in-house expertise in developing Internet-banking features; instead, they have quite successfully used interorganizational cooperation to become competitive in this respect (Lüneborg and Flohr Nielsen, 2003). The goals of the decision makers may be more or less socially constructed or enacted, as pointed out by Weick (2001), and the enacted goals may be based on past experience of technological projects. In the 1990s some banks regarded their experience with PC banking as a necessary transition stage in obtaining competence in electronic distribution channels before introducing Internet banking (Mols et al., 1999). However, this does not always rule out the incorrect estimation of customer needs. Thus, the predictive power of teleological models may be limited because the goals are difficult to grasp and several paths may lead to the same end goal.

3.2 Dialectical motors

By nature, change processes involve some disagreement. This is also the case in the adoption of Internet technologies. Conflicts grow out of structural differentiation or specialization and are found at the inter-organizational, inter-departmental, and interpersonal levels. They may be reinforced or moderated by personal factors, as different employees have different attitudes towards change. The Internet offers new marketing channels to banks and manufacturers, and these channels may compete with existing channels that operate via branches, agents, etc. When adopted they may cannibalize previous investments by reducing the value of investments in the pre-existing marketing channels of the organization, such as the value of the time and effort spent developing close, trusting, and profitable relationships with distributors. Differences in the willingness to cannibalize do not necessarily develop into manifest conflict, but opinions often differ between key people such as branch, IT, and marketing managers. The results of quantitative analysis may identify a firm's willingness to cannibalize as an important antecedent to early adoption of Internet-based marketing channels and Internet banking (Flohr Nielsen, 2003; Flohr Nielsen et al., 2005). If so, it must be understood that a firm's willingness to cannibalize reflects an overall attitude that results either from *compromise* between key actors' different attitudes, or from the *defeat* of one or more actor.

According to dialectical theories, change occurs when opposing values gain sufficient support to confront the status quo, a process that may start at

an inter-organizational level. The Internet initiatives of competitors may be the threatening impulse from the market. Thus, market pressure in this sense has been shown to have a significant direct impact on the adoption of Internet-based sales and marketing (Flohr Nielsen et al., 2005).

3.3 Evolutionary motors

The simple Darwinist evolutionary model perceives changes in organizational forms as a repeated process of variation, selection, and retention. Variations may be understood as creative attempts to find niches in the market. Although not explicitly sought in our Internet-banking study, we found, notably, that several pure Internet banks have run into trouble; the surviving banks with successful Internet presences seem often to be traditional banks that supplement personal banking service with Internet-banking features.

Not all attempts to introduce new organizational forms are successful, and some are only successful in the short run. Similarly, some use of customer-related technology has been short lived. Although telephone and PC banking were widely used in the 1990s, it was early on predicted that their use would vanish as Internet technology came to outperform them (Mols et al., 1999).

3.4 Participation

Our data allows room for alternative interpretations; in particular, the findings regarding the participation of specific types of employees in implementing Internet banking supplement the structural equation modeling of individual drivers. Internet banking is relevant to functions that have traditionally been located in several different units, such as IT and marketing departments and individual front-line branches. Thus, it would be expected that employees from these units would often participate in the adoption and implementation process, and that this participation would improve the quality of the implemented solution; this assumption was barely confirmed by our data.

The first step in the analysis indicated similarities in the participation pattern across organizations (Figure 13-3). Only, the organizations with experiences from implementation were characterized by involved lower level line personnel more often in the process. This indicates that more employee participation is allowed later in the change processes.

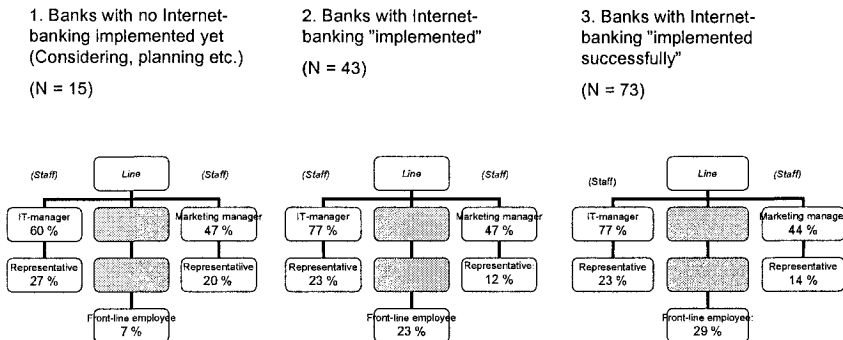


Figure 13-3. Participants in Internet-Banking Adoption in Nordic Banks in 2000 (Banks with more than 25 employees).

In the next step we looked for other interventions. Both in organization development textbooks and recent updates on research needs it is recognized that restricted single interventions seldom are associated with performance. Significant organizational improvements seem to require combinations of different interventions (Cummings and Worley, 2005, Pettigrew et al., 2001). Based on meta-analytic work Robertson et al. (1993) also argue for the importance of congruence between various work setting changes.

The combination is no easy task. Quantitative analyses gave no support for a hypothesis of a positive influence of recent change in business process on the adoption of integrated Internet banking or performance (Flohr Nielsen, 2003). A possible explanation may be that poor financial performance may force banks to initiate a business process reengineering project, which then easily becomes an independent act. To establish the link from business process reengineering to performance with information technology in an enabling role as suggested by Hammer and Champy (1993) may require a broad agenda and broad participation in the Internet projects. It is also indicated that the Internet bank attractiveness depend on management support and line-crossing participation in the process of implementation. "Line-crossing participation" is a factor defined as the

participation of marketing managers and front-line employees along with IT-people (Flohr Nielsen, 2003).

At the same time though, our data indicate weak association between individuals' participation and performance indicators such as the Internet bank attractiveness (Flohr Nielsen, 2005).

Furthermore, comparing "successful implementers" with mere "implementers" of Internet banking revealed no significant differences related to the participation of either IT, marketing, or branch managers, or of front-line employees in the implementation. Answers to the question, "To what extent are changes in technology made difficult due to difficulties with interdepartmental cooperation and coordination?" revealed only one significant instance of correlation with the participation indicators: when IT managers themselves participated, they tended to report fewer difficulties in this respect. Only in the *perceptions* of these influential experts did participation apparently exert a conflict-moderating effect.

Our data seem to indicate that representative participation *per se* had only a slight impact. Representative participation mainly increases satisfaction and then perhaps only for the representatives themselves, as also suggested by Cotton et al. (1988). The ambiguous nature of participation is reflected in the use of language, as shown in O'Connor's textual analysis of change processes (O'Connor, 1995). Despite the often cited goal of "involving everybody," disagreement may lead to the actual exclusion of resisters who "lack understanding" or "need to be educated." Only key people with formal authority are actually involved in the central initiating stages, whereas the involvement of others is restricted to agreeing and following in roles controlled by management and peer pressure. The texts signal a constant play between the inclusion and exclusion of individuals (O'Connor, 1995).

Does participation not even help in measurably aligning participants' mental maps? To answer this question we took as a point of departure the fact that IT and marketing managers often held incongruent frames of reference regarding the relevant strategies in their banks. If both types of managers participated in the adoption and implementation process, we expected greater congruence to emerge, which may be a step towards unifying goals. However, we did not measure significantly fewer differences in the scores pertaining to the items on the willingness to support Internet projects in banks where both types of managers participated in the formulation of the Internet strategy (Flohr Nielsen, 2005).

Our data did uncover situations in which participation reinforces disagreement. This seems to be the case when users participate in interdependent projects that overlap or have less congruent goals. For example, involving branch managers in decentralizing customer-related decisions may strongly motivate micro-level performance and commitment

in providing personal services. In situations where this is reported, IT managers also more often report interdepartmental problems as barriers to adopting and implementing Internet technologies (Flohr Nielsen, 2005).

Thus, this result is based on an analysis that moves beyond the normal evaluation of specific types of intervention. It also indicates that the relevance of issues on the participative agenda may often go hand in hand with the conflicting goals of the parties involved. This is important as both multiple change efforts and conflicting goals may characterize the path to new organizational forms.

The examples illustrate how single-level analysis may be dangerous if motors from other levels are not taken into account. Motors from the upper level do not only create external demand-pull or technology-push impulses; they also appear within organizations as strong forces that either set impersonal constraints or are reflected in the demands and attitudes of powerful representatives.

This may also be reflected in a correlation between reports of difficulties in changes in technology due to difficulties with interdepartmental cooperation on one side and mutual confident partnerships with other firms concerning IT development on the other side. Avoiding external conflicts often results in their internalization – in order to unite at one level you may disunite at another level.

Such structural conflicts often seem to narrow the scope for action in planned change. A recent study found that conflict management had positive effects on the outcome of information system development, but that it did not substantially mitigate the negative effects of interpersonal conflict on these outcomes. In other words, the impact of interpersonal conflict was perceived to be negative, regardless as to how it was managed or resolved (Barki and Hartwick, 2001). The implication may be a warning against overly optimistic conflict management interventions as well as against neglecting conflict in the first place.

Taking a planned change look at the adoption and implementation of Internet technologies may introduce a bias towards the constructed modes of change (teleological and dialectical motors). These are simply at the core of practitioners' perceptions of goal-directed change processes whether or not actual goals are clear or vague, consonant or conflicting. Determined modes of change are beyond their control and may at most be referred to as upper-level developments that mark the boundaries of their own change efforts. There may even be a bias in organizational development towards a teleological point of view, in the sense that management and change agents consider their organization to be unified in the pursuit of common goals. They may recognize some conflicting goals, but basically they think that

there is harmony and that change will come to be accepted by means of the proper involvement of participants.

This has implications for the diagnosis of problems in single organizations. The boundaries of a planned change process of Internet-technology adoption and implementation do not merely delineate a stable structure. The change is more or less tightly coupled to upper-level motors that have both evolutionary and life-cycle characteristics. At the industrial level, technological innovations follow a pattern described as a transition from an early “fluid” state to a specific and rigid state (Abernathy and Utterback, 1978; Abernathy and Clark, 1985). These processes leave room for human agency, but there is a hierarchy of design in which some developments logically create choices, some of which are prior to others.

Connected to this line of reasoning is the observation that the motors of change often vary from one stage to another. In the early stages of consideration and adoption, factors related to life-cycle and evolutionary motors are important explanations of outcomes. Organizations must respond to the external pressure exerted by technological developments and market demands. The responses are decisions concerning the adoption of specific technological features. These appear to be more rational and to be driven by teleological motors. As the process moves towards implementation, more overtly political factors, such as management support, become important. Dialectical motors operate within organizations, for example, in the sense that participants act as representatives of the IT and marketing departments or of front-line employees. How aggressively these battles are fought depends on personal factors.

These are main points of our empirical analysis. All four change models contribute to the explanation of change patterns but especially important is the temporal sequencing through models as the web technology adoption advance. This also indicates how participation changes from one stage to another. From the start, participants sensing the market and the technological environment may act as channels to life cycles and evolutionary drivers in planned change. At later stages and reinforced by multiple change initiatives, participation easily turns into disagreement and dialectical processes. In these results, we find arguments for further considerations of the role of participation in the framework

4. RECONSIDERING THE MODELS OF CHANGE

As briefly mentioned by Poole and Van de Ven (2004), there is a practical side to their typology. Each type represents a perspective that may help identify certain implementation errors or barriers. Since teleological

processes are basic to the idea of planned change, they point to the fundamental problem of individual cognitive biases. Key decision makers may intervene on the basis of biased views and prejudices. Misperception may also be related to life-cycle theory. If the importance of life-cycle motors is overestimated, key people may be overly compliant and place too much faith in automatic developments. If the importance of life cycle-motors is underestimated by key people, they may end up fighting losing battles. Evolutionary processes are conditioned to some degree of competition. If there is no competition on scarce resources there may be a lack of selection and retention mechanisms that secure the survival of the best arrangements. Dialectical processes may only work in situations in which conflicts are managed properly.

Life cycle motors encapsulate planned change by the immanent growth to more elaborate and mature stages of organizational units and arrangements including the use of information technology. Life cycle motors may create impulses for planned change as well as limit the impact of planned interventions. Planned change can often only modify or reinforce the life cycle motors. Participation may lead to personal articulations of the life cycle perspective in the sense that participants act as advocates of "the necessary development". In a similar way, planned change is encapsulated by evolutionary motors. Ultimately, the market competition or competition for internal resources select the organizational arrangement to survive, but more or less precise predictions are brought into the planned change process by participants referring to for instance "market pressure" or "customer demands".

From a practical point of view, planned change may benefit from the driving forces and the limitations set by the life cycle and evolutionary motors if these motors are clarified through their participating advocates. Chaotic and random responses should, however, be avoided. As the study on time-paced change by Brown and Eisenhardt (1997) indicates, companies that do best in continuously changing markets do not simply reactively respond to their environment, but often set their own timetable for innovation. They work on change at a consistent pace within a limited structure.

The participation of different advocates of change may challenge the unity and planned change may fail if there is a mismatch between the prevailing conditions and the teleological motor (Weick and Quinn, 1999). A crucial point is whether participation can help establish these conditions where a singular entity "engages in reflexively monitored action to socially construct and cognitively share a common end state or goal" (Van de Ven and Poole, 1995, p. 525). Participation should also be part of activities

contributing to meeting the requirements and constraints connected to the attainment of the goal.

Although participation in itself can be said to be determined by macro-political pressure or barriers (McCaffrey et al., 1995; Cole, 1986) there is also room for a more instrumental perspective. Furthermore, instead of considering an ideal restricted form of participation as a system with formal direct involvement of parties and heavy influence on decisions (McCaffrey et al., 1995), any participation which is recognized as relevant by the parties should be included. Thus, moderate power-sharing practices have diffused most widely in the USA, including survey feedback involving a large number of participants in diagnostic activities in change projects. If relevant issues are included, this form of participation may have an important impact on the organizational members' attitudes and perceptions of organizational problems and opportunities (Cummings and Worley, 2005). The weak link may be to get relevant issues on the agenda in surveys and meetings.

One of the ideas underlying the organizational development process may be to achieve—in the words of socio-cognitive researchers—congruence between participants' frames. Generally incongruences may include the frames of technology and the role of technology in business processes (Orlikowski and Gash, 1994). However, striving for greater congruence between frames does not necessarily mean that conflicts are solved. On the contrary, it may draw attention to incongruences that arise from political differences, incongruences that have to be treated by means of proper conflict management. Only incongruences arising from pure information deficiencies may be easily handled by providing information and arguments focused on participants' assumptions and priorities.

The fundamental assumption that participation always helps in overcoming resistance to change may be wrong. Organizational conservatism that prevents the proper use of new technology may be even stronger in organizations that offer participation. An international study of various projects in the European service sector found that the efficacy of participation in this respect appears to depend on the presence of cultural and institutional supports in society (Child and Loveridge, 1990). Lack of support combined with legally enforced participation will make the acceptance of radical organizational solutions more difficult.

It has long been recognized in the standard organizational change and development literature that systems theory provides a useful view on organizations as systems. Thus, organizations are viewed as intertwined and interconnected subsystems and elements, including inputs, outputs, feedback loops, and environments. A change in one element leads to change in other elements, and analysis can happen at various interconnected levels: the organizational, group, and individual levels (Cummings and Worley, 2005;

French and Bell, 1999). However, the dependency between processes at different levels needs to be specified. A small step has been taken by distinguishing how motors engage each other as aggregated, nested (tightly coupled), or entangled (tightly or loosely coupled, dependent on filtering mechanisms)(Poole and Van de Ven, 2004). Power is related to the ability to get issues on the agenda or being successful in “issue-selling” as Dutton et al. (2001) have shown. Motors at different levels are connected by motors that make participation central key in filtering and channelling. This filtering depends on issue-selling in the sense that issues are tied to valued goals (profitability, market share, customer relationships etc.) or to concerns of key constituents (Dutton et al., 2001).

5. INFORMING THE THEORY OF ORGANIZATIONAL DESIGN

Cross-functional cooperation is central to organizational design considerations and the adoption and implementation of new web technologies is an issue that challenges existing procedures. It is an impulse with both market pull and technology push elements, and the agenda of this chapter is to link actual redesign to the organizational change models.

The findings from our research studies suggest two main implications for scholars.

First, it is possible to analyze the change by combining a diversity of perspectives provided by life cycle, teleological, dialectical, and evolutionary theories of change. The examination of motors gives a comprehensive picture of ongoing changes. Still, it is sufficiently simple to fulfill the scientific ideal of parsimony and to provide the practitioner with understandable cues.

Second, participation can be interpreted as an important link between the different models of change. Thus, on the basis of the fragments of experience and theory, a complex but manageable view of participation grows. Furthermore, using this view, we are able to take advantage of recent developments in innovation and information system research. The examples drawn from the study of Internet technology adoption by Nordic banks and manufacturers show that key persons' participation in these projects is only weakly associated with greater agreement, more congruent frames, and better outcomes. Consequently, we suggest that future research should pay greater theoretical and empirical attention to participation, to participants, and to their identifications. Participation could be incorporated into the comprehensive theoretical models. For example, how do issues related to life cycle and evolutionary motors become issues in diagnostic data

collection and meeting agendas; what is done to achieve congruence between the participants' different frames and avoid stereotyping? Answering such questions may be central steps in specifying participation as channels or filters between motors and between levels. Other questions to consider are: when does participation connect motors and levels and when does participation separate entities, narrowing the scope of change by reinforcing existing structural affiliations? The answers to these questions may also relate to recent organizational development such as organizational learning and appreciative inquiry that recognize that the past can play an important role in the ongoing life and change efforts (Seo, et al. 2004). Empirically, researchers could follow such change processes more closely to canvas them for indicators of motors and participation.

We suggest that participation and identifications are recognized as central filters that should be given more theoretical and practical attention in our efforts to understand the transformation into new organizational forms.

6. INFORMING THE PRACTICE OF ORGANIZATIONAL DESIGN

In line with the theoretical considerations, the findings from our empirical studies suggest some implications for practitioners.

First, the general argumentation relates to several organizational development intervention techniques. The technology of participation should be improved since actual participation generally seems to have a limited impact in achieving an organizational design that fits the current conditions. Managers may have an inclination to think that decision-making and implementation can be separated. Consequently, participation may often take place after all the important and controversial decisions have been made.

Second, planned change processes could include diagnoses that take life cycle, evolutionary and dialectical forces into account. Thus, this extension of diagnostic models is an important link to design theories. Design of organizations is mainly a result of redesigning processes where changes take existing structures and contingencies as the point of departure. Thus, both proper diagnosis of organizational problems as well as the process of connecting diagnoses to change become central in establishing a desirable fit. Participation is in itself a reflection of existing structures and may - intended or unintended - reinforce differentiation and conflicts. Managers and change agents should recognize that also the multiple changes often lead to disagreement and should be prepared to use conflict-handling interventions.

In this way, practitioners should supplement the rather simplistic cause-effect and contingency thinking that constitutes the basis of the diagnostic models used in organizational development practice. It may be worthwhile to bring such supplements into the diagnostic models presented in organizational change and development text books (cf. Cummings and Worley, 2005). This may fuel the participative process in the diagnostic stages and improve the technology of participation linking changes to several intervention techniques. As pointed out by Rynes et al. (2001), there is a widening gap between theory and practice. More advanced participative projects may present an important field for action research by academics who are interested in closing this gap.

7. CONCLUSION

From this study, it is concluded that both the empirical examples of current adoption of web technologies and general references to several change models may help to explain how organizations are changing towards new organizational forms. Understanding and guiding the new developments requires knowledge of existing organizational design, the new technology and customers' demands. Even more important is knowledge of social processes and the interplay between driving forces.

Web technologies trigger processes which in turn may lead to both intended and unintended changes in organizational structure. Actual participation seems to play a minor role in the change projects. Often life cycle and evolutionary models can explain much of the dynamics, leaving limited room for planned change. Planned change is also encapsulated, but not totally restricted, by the conflicts between potential participants.

In order to understand actual implementation problems, we suggest further elaboration on the practical side of the Van de Ven and Poole's (1995) typology of change models.

On these grounds, there is argued for complex and integrated models as well as more theoretical and practical focus on participation.

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Chapter 14

GOVERNANCE CHANNELS AND ORGANIZATIONAL DESIGN AT GENERAL ELECTRIC: 1950-2001

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Abstract: This study advances an attention-based view of corporate strategy and explores its implications for organizational design. We examine the governance of resource allocation in a multi-business organization through the firm's network of decision-making and communication channels. Using both primary and secondary sources, we analyze the changes in the decision-making channels at General Electric (GE) over a 51-year period across four CEO regimes: Ralph J. Cordiner, Fred J. Borch, Reginald H. Jones and John F. Welch. We identify four distinct channel functions: reporting, staff, control and agenda management. Through our analysis, we find that strategy does not emerge from any unitary, bounded process but from the pattern that emerges from a network of tightly and loosely coupled channels operating simultaneously.

Key words: General Electric, strategy process, organizational design, governance, attention, resource allocation, decision making.

1. INTRODUCTION

This study advances an attention-based view of corporate strategy and organizations (Simon, 1947; Ocasio, 1997; Ocasio and Joseph, 2005) to examine the design of governance structures and processes in multi-business firms. We define governance as the formal mechanisms and processes for directing, regulating, and controlling the allocation and distribution of resources within the firm. We examine the system of formal decision-making and communication channels that guide governance in multi-business firms. We develop a case study of General Electric from 1950-2001

to compare and contrast four regimes of governance of this diversified multi-business organization and to explore key design characteristics of the governance structure and process. Our primary thesis is that the function of key governance channels, as well as their structure, are key design features consequential for the direction, control, and regulation of both human and financial resources within the firm.

In multi-business firms, formal structures and processes substitute for the market as the primary mechanisms for allocating and distributing human and financial resources among the multiple business activities of the firm (Chandler, 1977). In diversified multi-business organizations, the multidivisional structure or M-Form organization has been heralded as the most efficient governance structure for resource allocation (Williamson, 1975, 1985). Multidivisional firms are characterized by a decentralized system of semiautonomous operating units, organized as profit centers, and a general office of both staff and line executives that monitor operating unit performance, allocate resources among divisions, and formulate business policies and strategic plans (Chandler, 1962, Williamson, 1985). The virtues of the modern corporate hierarchy, however, are offset by the problems of controlling, coordinating and incentivizing activities within and between the corporate headquarters and its business units. To deal with these bureaucratic costs, organizations develop information processing mechanisms to govern the division of problems, simplify choice and direct information and alternatives (Scott, 2003: 158). These mechanisms – the governance channels of the firm – guide internal communication and strategic decision making in the face of complex business environments and competing organizational demands for attention (Simon, 1979). A focus on governance channels provides a better understanding of the role of corporate-level administration and agendas in the coordination of resources among multiple business units.

Analyzing data over a 51-year period from both historical documents from the General Electric (GE) corporate archives and secondary sources, we seek to understand the function, structure, and processes within GE's decision making channels and their impact on directing, guiding and controlling resource allocation among the organization's business units. In particular, we explore the changes in these channels across four CEO regimes: Ralph J. Cordiner, Fred J. Borch, Reginald H. Jones and John F. Welch.

Through our analysis of governance channels at GE, we find that strategy does not emerge from any unitary, bounded process within the corporate office, as suggested by Chandler (1962, 1977) and Williamson (1985), but from a network of tightly *and* loosely coupled reporting, support, control and agenda management channels operating simultaneously. Resource allocation

and strategy formulation for GE is best conceived as a distributed endeavor rather than a specialized one which is shaped by a loosely coupled network of concrete decision making channels, linked by information and knowledge flows.

2. THE ATTENTION PERSPECTIVE

The attention based view of the firm (Simon, 1947; Ocasio, 1997) suggests that organizations distribute and regulate the attention of organizational actors via decision-making and communication channels. Multi-business organizations contain a large number of decision-making and communication channels, such as face-to-face meetings (e.g. board meetings, performance reviews, strategic planning retreats), written communications (e.g. annual reports, budgets), databases/websites, and other forms of formal and informal communications. Decision-making and communication channels can be classified as either: 1) governance channels, whose function is to guide, control, and regulate resource allocation and distribution among organizational programs, projects, and activities, or 2) operating channels, whose function is to administer and execute said programs, projects and activities. The formal governance channels are linked together via common issues and initiatives, forming a network of governance channels within an organization that is the conduit for resource allocation and strategy formulation (Ocasio and Joseph, 2005).

The content of the governance channels and the structure of the channel network help us understand how managers process the issues and initiatives that constitute the agenda of resource allocation and strategy formulation of the corporation. Much of what occurs within governance channels are standard operating procedures that shape managerial perceptions and closely guide the selection of alternatives (Burgelman, 1991). Channels are designed both to schedule a specialized subset of corporate resource allocation and strategic decisions and to link these decision processes across the enterprise. Examples of governance channels include corporate board meetings, executive committee meetings, strategic planning reviews, capital budgeting reviews, budgeting and operating planning, financial reviews, human resource management reviews, executive communications and training sessions, among many others.

By focusing on governance channels as the unit of interaction, we view formal interactions and communications in the firm as the underlying unit of formal governance structures. While reporting relationships are a particular form of channel that is dyadic in structure, channels include alternative forms of linkages, allowing for group communication and decision making.

Within the channel perspective, formal interactions rather than dyadic relationships are the constituent units of structure. Interactions are themselves linked however in a formal network, as issues and initiatives flow through formal channels, and as organizational members participate in a variety of different firm channels.

3. METHODS

Our approach involves a theory-building, historical analysis of governance channels at the General Electric Corporation (GE) from 1950 to 2001. Using historical interpretation and analytical induction we explore how organizational structure evolved through the incorporation of governance channels into the formal structure of the organization. General Electric over the period 1950-2001 holds several advantages for the study. First, public information is readily available to allow us to study changes in organizational design in some detail. Second, GE is an extreme case, where the theoretical mechanisms that are the focus of this investigation are especially transparent (Eisenhardt, 1989). GE is a multi-business, highly diversified corporation, which has well documented processes that are clearly influenced by existing environmental and organizational contexts. The intent is to present grounded descriptive material and develop an understanding of the impact of corporate channel designs on resource allocation and strategic decision making.

4. DATA AND ANALYSIS

Data for the study is being drawn from several sources: 1) historical documents from the GE corporate archives in Schenectady, New York including Board of Directors minutes, executive correspondence, *GE Monogram* –the internal employee newsletter, the *Schenectady Work News* – a plant-level newspaper, *Research and Development Post* – the research and development center’s internal newsletter, annual reports, and organizational charts and directories; 2) public documents including annual reports, proxy statements and speeches and 3) newspapers, magazines and books published from 1950-2001 that concern General Electric, one of its CEOs or subsidiaries or operational units.

In our analysis, we examine changes in the network of governance channels under the regime of four CEOs: Ralph J. Cordiner (1950-1963), Fred J. Borch (1963-1972), Reginald H. Jones (1972-1981) and John F. Welch (1981-2001). Over this period, we identify the prevalence and

importance of the various governance channels at GE. This emphasis on governance channels and channel network connections as the units of analysis provides a new perspective on organizational design. Historical interpretation and analytical induction was used to systematically examine the similarities and differences between the network of channels during the four CEO regimes, to identify key channel functions and to develop key explanatory concepts. We concentrated on key transition years when major process and structural changes were made. Typically, transition periods resulted in significant changes in channel mechanisms and were consequential for the evolution of the resource allocation within the firm. These transition years were: 1951-52 (which coincided with the firm's decentralization and the establishment of an M-form structure), 1970-71 (which coincided with Borch's institution of SBUs and incorporated the reorganization of the top management team and elaboration of the groups, division and department levels in 1967), 1977-78 (which coincided with Jones' addition of the sector level) and 2000-2001 (which follows Welch's delayering of the organization into fifteen businesses).

In the section below, we provide a theoretical overview of governance channels and the types of channels that were identified through out analysis. We then present an analytical history of the changes in governance channels at GE under the four CEOs studied. Finally, we offer some implications for organizational design theory and practice.

5. THEORETICAL PRINCIPLES OF GOVERNANCE CHANNELS

Adoption of the multi-divisional structure by U.S. corporations presents a unique problem for their executives. Through decentralization, the locus of operational decision making migrates to units with the most immediately applicable information required to make such decisions. Thus, decentralization allows the enterprise to respond to the need for better planning, greater flexibility and faster, more informed decisions (Chandler, 1962).

However, executives running these organizations need to balance long-term health of the enterprise with day-to-day decisions making necessary for efficient and effective operations. Without the mechanisms in place to do so, decentralization would have no advantages over breaking up the company and letting market forces dictate resource allocation. Therefore, such enterprises require an administrative system through which information and commands flow to direct the appropriate internal allocation of resources. The primary economic objective being the full utilization of those resources.

The problem they face is primarily one of governance. How can executives within such an organization coordinate, plan and appraise the work of the enterprise and appropriately allocate its resources? According to Williamson (1985), the firm may be conceived as a governance structure rather than a production function. Governance structures within the firm are distinct from market mechanisms in terms of resource allocation in that they rely on hierarchical legal authority and fiat for what he calls cooperative adaptation.

However, hierarchical authority is not sufficient to explain prevailing mechanisms of resource allocation within multi-business organizations. Internal political forces, local idiosyncratic issues, ambiguous corporate directives, difficulties of tacit knowledge transfer and a host of other factors may render the corporate hierarchy ineffective. In general, the bureaucratic costs of transferring transactions to a corporate hierarchy must be controlled (Williamson, 1985) if the multi-business firm is to adapt. Therefore we must understand the micro mechanisms which enable the firm hierarchy to create order in the system and provide a way of resolving differences between autonomous units and the corporate center. We must better understand the link between the mechanisms of governance and the strategy processes of the multi-business hierarchy.

In this chapter, we address this question through an analysis of a critical feature of organizational design: governance channels. Governance channels are formal interactions and communications designed to allocate, monitor, and control organizational resources.

These decision making channels and the administrative processes with which they are associated span and link levels of the organization (Thompson, 1967: 149) and are, as Simon (1947: 103) notes, "partly based on, and partly separate from, the lines of formal authority." Committee meetings are prime example of decision making channels. Channels are integrated within the firm hierarchy to provide information to allocate resources within the firm (Ocasio and Joseph, 2005, Williamson, 1985) and address the problem of coordination which arises with the multi-divisional structure. Whereas hierarchy offers a solution to the hazards of contracting, channels provide an explanation for the informational and relational requirements of the bureaucracy that result from internalizing resource allocation in the large multi-business enterprise.

6. GOVERNANCE CHANNELS AT GENERAL ELECTRIC

The system of governance channels at GE has evolved under four CEO regimes: Ralph J. Cordiner (1950-1963), Fred J. Borch (1963-1972), Reginald H. Jones (1972-1981) and John F. Welch (1981-2001). In this section, we review each regime in detail and highlight key governance channels. While we acknowledge the importance of informal channels, we focus our attention on the formal channels of the organization central to resource allocation, strategy formulation and implementation. Our analysis is designed to understand both channel function and the degree of coupling between channels. We seek to understand how the system of cross-level and temporally arranged interactions situated throughout the enterprise may regulate the attention of its decision makers on particular issues and initiatives so that strategy formulation and resource allocation processes are coherent within the context of a large multi-national conglomerate.

We have presented the primary channels of GE in Figure 14.1.

Financial Control	Strategic Planning	Strategic Planning and Control	Strategic Agenda Management
Ralph J. Cordiner (1951)	Fred J. Borch (1970)	Reginald H. Jones (1977)	John F. Welch (2000)
Board of Directors	Board of Directors	Board of Directors	Board of Directors
Advisory Council	Chief Exec. Office	Chief Exec. Office	Chief Exec. Office
	Corp. Policy Board	Corp. Policy Board	Corp. Exec. Comm.
Financial reporting	Financial reporting	Financial reporting	Financial reporting
Auditing	Auditing	Auditing	Auditing
Crotonville	Crotonville	Crotonville	Crotonville
Service Departments			
	SBU Planning	Sector Planning	
Annual Bus. Review		SBU Planning	
	Manpower Review	Session I, II	Session I, II
		Session C	Session C
President	CEO	CEO	
Group	Group	Sector Group	
Division Dept	Division	Division	CEO
	Dept.	Dept.	Business
Loose Coupling	Decoupling	Tight Coupling	Loose Coupling
Reporting Channels	Staff Channels	Control Channels	Agenda Channels

Figure 14-1. Governance Channels at General Electric

7. CHANNEL FUNCTIONS

The function of a governance channel refers to its role in the coordination and allocation of financial, human and physical resources. Four types of channels functions were identified in our analysis of General Electric: reporting channels, staff channels, control channels and agenda channels, with individual governance channels having one or more distinct functions. Reporting (i.e. line) channels and staff channels were identified by Chandler (1962) in his description of du Pont's migration toward the multi-divisional structure. Although he does not address the concept of channels explicitly, his historical analysis essentially details the evolution of executive and other decision making arenas as attention distribution mechanisms. Control channels include what others have identified as budgeting processes and financial reporting (Simons, 1991, 1994; Goold and Quinn, 1990) and agenda channels, mechanisms for drawing attention to major initiatives, are the authors' contribution to the literature. The channel types identified here are not meant to be mutually exclusive, but rather they are analytically distinct. In any one channel, many topics may be discussed and often a single channel has multiple functions.

Reporting channels follow the vertical chain of command of the organization and are a primary focus of traditional approaches to organizational design. They most closely reflect the division of labor within the firm and constitute the formal lines of decision making authority.

Staff channels reflect the enactment of corporate policies and initiatives for the firm's functional activities – such as finance, human resources or information technology processes. It is here where topics such as management development and better manufacturing methods are considered. In many instances, staff channels are viewed as “back office” functions that simply render assistance to line operations, and are best understood as operating channels within the corporate office, rather than a part of governance. However, GE had several major exceptions, including: Strategic Business Unit (SBU) planning under Borch, the backbone of GE's strategic planning efforts in the 1970s, and Welch's management development at Crotonville, NY, which served to communicate and control executive manpower within and across the organizational business units.

Control channels are those that are conceived as instruments to ensure that decisions by various units are consistent with overall company objectives. Through control channels, such as financial reporting and audits, managers standardize performance measurements, detect deviations from established standards and align local decisions with organizational goals. GE's monthly financial reporting system, which requires business managers to submit detailed operating statements, was established by Cordiner and

remained in effect through Welch's tenure (and beyond). In control channels, managers also discuss corporate policy, operating and planning issues with a focus on financial performance vis-à-vis forecasts and plans. While control channels typically involve financial performance, control channels may also evaluate both qualitative and quantitative indicators of performance by the firm's managers and operating units.

Agenda channels are used by senior managers to rollout corporate strategy initiatives, monitor the execution of those initiatives and guide the corporate-level issues and initiatives which organizational members attend to. Acting as a feed-forward and feedback mechanism, early agenda channels at GE primarily set corporate policy and strategy. Later, agenda channels such as Welch's annual meeting in Boca Raton, introduced specific strategic initiatives for the year as well as recognize managers who exceeded expectations on existing initiatives.

8. FINANCIAL CONTROL UNDER RALPH J. CORDINER, 1950-1963

At General Electric, the reporting channels changed most dramatically with the shift to decentralization and the emergence of a multi-divisional structure beginning in 1951. In the new reporting structure, operating departments were decentralized three levels below the CEO and were separated from corporate staff functions such as research, accounting and marketing. The operating departments reported to divisions and divisions reported to group Vice Presidents who had line responsibility. Group VPs were also part of the Executive Office, GE's most senior agenda (i.e. policy) channel which also included the service department chiefs and Cordiner.

The governance of the newly decentralized business units was undertaken through a network of reporting, control, staff and agenda channels. The line reporting channels linked departments with divisions, divisions with groups, and groups with the President of GE. Reporting channels were responsible for monitoring managerial and operating unit performance and established a bottoms-up process for both budgeting and long term financial planning that substituted for the previously centralized resource allocation (prior to the decentralization). Monthly financial reporting and audits served as the primary control channels for the operating units as managers were required to submit forms detailing operations data, ratios and key measurements, and a staff of internal auditors served to monitor the validity of these financial measures. The firm board of directors also served primarily in a control function. Staff channels also served a governance function, under Cordiner, with marketing a particularly

important example, as the Marketing Department served to guide and coordinate marketing policies throughout the firm.

Under Cordiner the corporate agenda for resource allocation and strategy formulation was developed within two channels: the Advisory Council and the Annual Business Review. In addition to the President, Support and Group Vice Presidents constituted the Advisory Council which met regularly to monitor and guide overall corporate performance, to advise on the issues and initiatives affecting corporate strategy. Cordiner, the corporate staff and operating unit managers were also brought together at the department locations for Annual Business Reviews, which served both an agenda function and a control function. The Reviews would typically draw attention to the need for one of the service areas and provide both top down and bottom up communications on current and long-term operations and personnel issues. Given the direct participation of the President, Annual Business Reviews were a key mechanism for implementing corporate strategic agendas at the level of operating units, though the focus was primarily financial performance and operations.

We characterize the structure of governance channels under Cordiner as loosely-coupled. Long term plans, developed with the participation of the Advisory Council were loosely coupled with the control channels. While the coupling between control channels and reporting channels was greater, other channels were not well integrated with each other. Even for the Annual Business Reviews, which served a dual function, these channels were limited in their ability to tightly link corporate strategy and policy formulation with the financial control and functional policies of the corporation.

Our analysis of channel functions for the Cordiner era corresponds for the most part with the characterization of the M-form structure by Chandler and Williamson (1962, 1977). The Advisory Council constitutes the primary corporate group engaged in strategy formulation. But there is partial, albeit loose coupling between operations and strategy formulation as the Annual Business Review provides a channel for business units to directly influence the corporate agenda and to affect strategic decision making for the individual departments.

9. STRATEGIC PLANNING UNDER FRED J. BORCH, 1963-1972

In 1967, a major reorganization occurred which expanded the number of business units and changed the composition of the top management group. Borch's major change was the addition of a President's office, later called the Corporate Executive Office or CXO (see Figure 1), which was the

creation of a five-man executive group including President Borch, the Chairman, and three Executive Vice Presidents. Without the group vice presidents, the Corporate Executive Office was relieved of line responsibilities and was charged, instead, with setting general policy and strategy and directing the corporate agenda for corporate initiatives.

Faced with the problem of profitless growth, a major organizational design change was the creation of strategic business units (SBUs) designed to develop strategic planning. A key concern was that the operating departments were not always the right unit for competitive strategy analysis. Further decoupling of strategy formulation and other functions occurred as a parallel organizational structure, SBUs, was superimposed on the existing group-division-department organizational reporting structure. SBUs were not separate organizations but were designations by the CXO of whether for any specific unit, the department, division, or group was the "correct" business unit level at which competition took place. If designated as an SBU, this level of the organization would be responsible for strategic planning. While most SBUs were divisions, some departments, and groups were also SBUs. SBUs developed their own SBU planning staffs to develop strategic plans.

For planning purposes, strategic planning by SBUs did not go up the normal vertical line of command but were coordinated by corporate staff including the Vice President for planning and the Corporate Planning Committee. While corporate staff reviewed the SBU plans, planning itself remained a partially decentralized function, as SBUs themselves prepared the plans, albeit under the guidance and supervision of corporate planning. Because most SBUs were at the division level or above, however, strategic planning was more centralized at GE than operations, which continued to coordinate most functional activities at the product department level. Monthly financial reporting and audits also continued independently of SBU planning as decentralized control channels, with each level of the firm, from the operating department on up, submitting their monthly reports.

Under Borch, management development, a process developed by Cordiner and carried out at the Management Research and Development Institute at Crotonville, was formalized as a staff channel called the Executive Manpower Staff. Designed as a centralized resource for evaluating and tracking talent, the staff conducted its own Manpower Reviews which were, however, separate from regular line performance appraisals.

Overall the Borch regime was characterized by further decoupling of corporate channels, as reporting, control (e.g. financial reporting), staff (e.g. SBU planning), and agenda management were differentiated activities with limited coordination between them.

10. STRATEGIC PLANNING AND CONTROL UNDER REGINALD H. JONES, 1972-1981

The major reporting channels were reorganized again under Jones. To alleviate the burden at the top, in 1977 the sector level was added. The Groups now reported to one of four Sector heads, who along with managing line responsibilities, also reviewed SBU strategies, budgets and capital allocation requests. Each of those sector heads reported to the Corporate Executive Office.

Faced with the problem of decoupled strategic planning, financial control, agenda management, Jones created a new set of strategy reviews which directly tied strategic planning with capital budgeting. As Figure 1 illustrates, these reviews (e.g. Session I, Session II, Session C), augment the SBU Planning. Moving away from the once-a-year approval process, the new strategic review “cycle” was distributed throughout the year and served to couple strategic planning, financial planning, and human resource reviews. A key development of this channel design was a focus on the timing and sequencing of corporate planning activities with individual channels focusing attention separately on strategic, operating, and human resource planning, but with the temporal flow of information designed for issues identified within one channel to be reflected in subsequent channels. This annual review cycle focused on issues particular to the individual operating units and SBUs. Second, he created a Corporate Executive Committee to manage the corporate agenda and to address issues that cut across multiple businesses and sectors.

In addition to the continued use of monthly financial reporting and audits, tight coupling of the channels was achieved primarily through a financial orientation to preparation of the various planning documents. A key difficulty of coupling under Jones was that the coupling of capital budgeting and strategic planning at the SBU level had the unintended effect of focusing attention on the numbers as the output of the strategy reviews with less attention to the conceptual drivers of the strategy or key strategic initiatives.

11. STRATEGIC AGENDA MANAGEMENT UNDER JOHN F. WELCH, 1981-2001

By 1985, another major shift in reporting had occurred resulting in new reporting relationships. Welch transformed the parallel SBU and reporting structure into 15 strategic businesses. All business units heads would report directly to Welch and the Corporate Executive Office. This restructuring

allows the CEO to get more involved in dialogue with the businesses on important aspects of strategy (Goold and Quinn, 1992).

Welch reformed strategic planning at GE and altered the degree of coupling between strategy formulation and implementation. What GE called its Operating System (General Electric Annual Report, 1999) became a mechanism for strategic agenda management, a vehicle for top down control of the corporate strategic agenda. Beginning with Boca, the Executive Conference held in January, and followed by the Session C manpower reviews, Session I strategy reviews, and Session II operating plan reviews, the corporate initiatives, as well as the regular meetings of the Corporate Executive Council provided a vehicle for the corporate agenda to be pushed down the corporation. This design change was achieved by taking the existing channel components developed under Jones, Session 1, Session 1, and Session C and undertaking changes in both channel content and process. While maintaining the control function for these channels previously developed, the channels also served as mechanisms for linking the corporate strategic issues and initiatives with those of the business units. Figure 1 illustrates the dual functioning of these channels.

By changing the process by which the reviews were conducted, in particular by changing the channel from a bottoms up communication to a two-way communication flow, Welch more than Jones turned Session C into a mechanism for monitoring through frank discussion how businesses were implementing the initiatives and agenda set by corporate. The Corporate Executive Council was also an important mechanism for enforcing the corporate agenda as peer review, social comparisons, and competition between business executives all served to reinforce the accomplishment of the top management agenda. Crotonville, formerly a staff channel, was also used to push through the CEO's agenda and train managers to execute initiatives (e.g. Six Sigma) turning into another channel focused on guiding and directing the corporate agenda and ultimately resource allocation.

12. CONCLUSION

The attention-based view of the firm (Ocasio 1997) provides the theoretical framing for this historical analysis of the decision-making and communication channels at General Electric. Our analysis helps contribute to a more theoretically grounded understanding of one particular organizational design component – governance channels – and their role in resource allocation and strategy formulation.

We find that channels underlie the formal organizational structure and provide a key link between and across levels in a bureaucratic structure.

Based on our analysis of channels at General Electric over a 51-year period, we conclude that the degree of coupling and interaction among channels characterizes their utility in focusing managerial attention on issues, initiatives and, ultimately, decision opportunities. Since strategy formulation and implementation results from the composite of many smaller decisions and actions within and between levels, locations, functions, and business units – channel coupling is consequential for the realization of strategy.

Our analysis highlights four channel functions and the changes in tight and loose coupling between corporate level and business level organization and between strategic planning, capital budgeting, human resource planning, and operations. Our analysis suggests that corporate organization may add greater value to a multi-business organization like GE the greater the corporate level initiatives are tightly coupled with business unit activities. Unlike Chandler (1977) and Williamson's (1985) characterization of the separation of strategic and operational control in multidivisional structures, we find that strategy development occurs not exclusively through the corporate office, but through the distributed network of governance channels that link both line and staff activities of the corporation, and the operating units with the corporate center.

12.1 Informing the theory of organizational design

Unlike the conventional view of organizational design, which focuses on the differentiation and integration of organizational units (Lawrence and Lorsch 1967; Galbraith, 1977), the attention perspective focuses on the design of decision-making and communication channels within the firm and the network of relationships between them. From this perspective, effective organizational design entails effective decision making (Simon, 1947). Effective organizational decision making, in turn, cannot be understood by looking only at the organizational hierarchy and authority structures but require an examination of what others have referred to as administrative or communication channels (Simon, 1947; Thompson, 1967) in particular what we call governance channels. We choose this approach (and terminology) because the mechanisms of governing the multi-business organization are key design choices, yet firm governance has not typically been in the domain of contingency theorists or organizational design scholars. Yet as Simon (1979: 501) implicitly suggested, it is the organization's design through effective decision making that organizations may capably cope with the "limits of man's abilities to comprehend and compute in the face of complexity and uncertainty."

Rather than focus on economizing transaction costs, we emphasize the importance of situated interactions among organizational actors. The

coordination between the corporate-level and business units is explained, not as a function of optimizing boundaries and limiting opportunism, but rather through information processing and managing the attention of its decision makers. Instead of positing a privileged role for fit among organizational components where success accrues to those firms that achieve coherence among components, we focus on the mechanisms by which an agenda management processes are linked to planning, budgeting and reviews processes. Thus, a key insight of our analytical induction is the importance of channel coupling for resource allocation in multi-business firms (Bower, 1970).

Our analysis makes the following contributions to the study of organizational design:

(1) *Identifying agenda management as key function within the firm's governance channels.* For multi-business organizations, specialized channels for agenda management may be developed as in the case of General Electric, both for the overall corporate agenda, and for the individual strategic agenda of each component business unit. The agenda management process suggests that the critical issue in most situations is not the final choice between two or three initiatives on the table at any given moment, but rather the prior question of what preferred range of options forms the "choice set" from which the actors select (Kingdon, 1984). Cordiner and Welch, in particular, utilized agenda channels to introduce their initiatives into the choice set for consideration by business units. Cordiner created the Annual Business Review and Welch utilized Boca and Session C to incorporate content from their agenda into the attentional focus of unit managers. At these meetings, the CEOs would reinforce new corporate initiatives and check the progress against prior initiatives as well as lead a discussion of budgets, performance and managerial talent.

(2) *Focusing on the need for developing a network of channels that links the strategic agenda of the corporation with the individual component business units.* Because decision making within diversified business units is idiosyncratic and influenced heavily by proximate internal and external pressures, mechanisms which link agenda channels with reporting, staff and control channels is necessary. To do so, Jones introduced a series of reviews and Welch repurposed those reviews, such as Boca, Session I, Session II to make conversations about budgeting, planning, managerial development and strategy implementation within the same channel more common.

(3) *Identifying the degree of coupling between channels as a design feature.* The degree of channel coupling narrows the set of conceivable issues and initiatives to the set that actually becomes the focus of attention and is consequential for the strategy which is ultimately realized. Each of GE's regimes was characterized by a different level of coupling. Borch's

network of SBU planning channels were decoupled from budgeting and line reporting which resulted in less attention to corporate level initiatives. Jones more than any other CEO, tightly linked corporate-level and business unit-level issues and initiatives through the addition of the Sector level and a series of review meetings. In this process, budget and planning decisions were tightly coupled with decisions regarding strategic initiatives.

(4) *Focusing on the degree of coupling of channels as critical for organizational design.* In all, our findings suggest that the network of governance channels may be tightly integrated or coupled, loosely coupled or decoupled entirely and that this structure is consequential for the realization of strategy. Under Cordiner the top down policy and strategy development led to loose coupling between strategy formulation and other functions of the firm. Under Borch, the introduction of strategic planning led to decoupling of budgeting and strategy as the bottoms up SBU planning processes were overlaid on the existing reporting structure. Jones greatly increased the coupling of strategy formulation with budgeting though by centralizing strategic planning processes through the introduction of the sector level and sequences of strategy reviews. Under Welch, more than under any other regime, channels were elaborated and designed to cut across the organization. These highly developed channels include the Corporate Executive Council (CEC) meetings, Session C's (annual personnel reviews), strategy reviews and operating reviews and Boca, the annual planning meeting of the companies top managers held in Boca Raton, Florida served multiple functions.

12.2 Informing the practice of organizational design

Perhaps no other organization or succession of leaders has had as much influence on the practice of management as General Electric. GE's innovative management practices have been recognized in the media, in business schools and in other top corporations. Even when GE did not invent a particular practice, such as Six Sigma, it improved it and popularized it. So it comes as no surprise to suggest that GE's governance channels are an exemplar of such networks and that other organizations may learn from GE's model.

Our historical analysis of GE suggests that the content of governance channels and degree of coupling between channels is variable and controllable by the organizations' decision makers. Through attention to factors such as the content, structure, and sequencing of channels, organizations may bring about an improved coordination of bottoms up and top down processes and integration between line and staff. We caution practitioners, however, that the channel aspect of design is historically

contingent, and that the social operating system attributed to Welch's leadership is really a network of reporting, staff, control and agenda management channels developed over many decades. Managers from GE acknowledge that the system under Welch would not be possible if not for the tightly coupled structure that existed in the 1970s and the financial control system initiated by Cordiner (Goold and Quinn, 1990).

By extension, it may be said that most channels are not created *de novo*, but instead repurposed. In fact, it may be easier to leverage existing channels toward new functions rather than create new governance channels. Welch did not introduce any new types of channels during his tenure, although he altered the content, structure, and process of existing channels. Reporting channels were collapsed, staff channels such as Session C became a primary agenda management channel, and strategy formulation and implementation processes were linked in the CEC, Boca and strategy reviews.

Finally, it is worth noting that much of the value added by GE's corporate-level is its ability to create and then devolve capabilities to its business units. Marketing under Borch, strategic planning under Jones, Six Sigma and leadership development under Welch were capabilities developed at the corporate level, then rolled out to business unit. At GE, corporate expertise is widely shared, perhaps a vestige of Cordiner's Service departments, and the adoption of practices, when not mandated, is broadly encouraged.

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