CHANNEL STRATEGY:
FORMULATION AND ADAPTATION

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Abstract

Inspired by open systems theories such as the structural contingency theory (Lawrence and Lorsch 1967), population ecology theory (Hannan and Freeman 1977), and resource dependence theory (Pfeffer and Salancik 1978), several marketing scholars have investigated how channels adapt and organize themselves to cope with their environments. Curiously, however, the implication of such adaptive behavior (i.e., the better adapted firms are more profitable) has not been investigated in the marketing literature. This paper aims to probe that question. Moreover, unlike previous marketing studies, we articulate the manufacturer's rather than the distributor's point of view, because channel strategy decisions are usually in the manufacturers' domain. We scrutinize firms' adaptive responses from a channel structure and channel task perspective. Results show that the better adapted firms deliver superior performance, and that the adaptive responses often occur subtly at the specific channel task level even when the channel structure itself is seemingly unaltered.

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Introduction

Marketing strategy, at an operational level, involves the selection of products, markets, prices, and channels of distribution (Kotler 1994). Implicitly, these decisions commit a firm to a particular type of business environment, which organization theorists have long conceptualized along the two dimensions of heterogeneity/homogeneity and volatility/stability (Aldrich 1979; Child 1972; Dess and Beard 1984; Duncan 1972; Emery and Trist 1965; Miles and Snow 1978; Scott 1987). Heterogeneity is defined as the variability of a business's critical resources, and volatility as the degree to which change is unpredictable. Marketing scholars have interpreted environments characterized by widely varying customer sizes, needs, and buying behaviors as being heterogeneous, and those characterized by competitive intensity and technological uncertainty as being volatile (e.g., Achrol and Stern 1988; Anderson and Weitz 1983). Therefore, product-market selection decisions implicitly position a firm somewhere on the environmental complexity map presented in Figure 1.

Figure 1
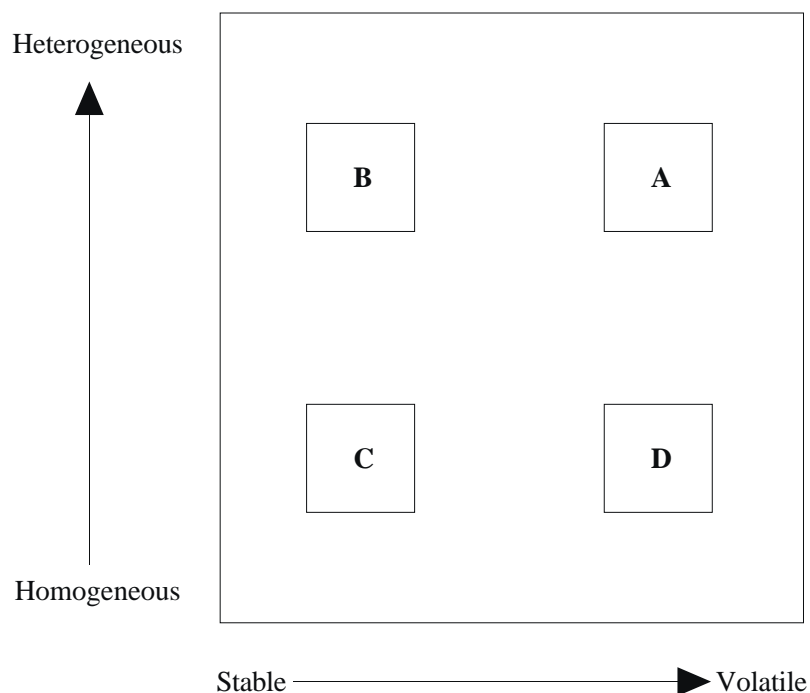
Environmental Complexity Map

Figure 1, of course, only provides a descriptive map of the environment. No normative implications about the desirability of any particular position (i.e., A, B, C or D) are suggested. Rather, positions on the map merely indicate a strategic choice, and A, B, C and D are all valid strategic choices, as are other positions on the map. It is known, however, that in order to successfully execute the chosen strategy and, indeed, in order to succeed in the marketplace, a business unit must adapt its organizational system to suit the complexities of its chosen environments. Contingency theories, as they are called, unequivocally suggest a better financial performance for better adapted firms. Therefore, for example, theory suggests that a business facing a highly heterogeneous-highly volatile environment (i.e., a type A environment in Figure l) is best adapted when using a *generalist* or an *integrated* organization; and conversely, a business confronting a highly homogeneous-highly stable environment (i.e., a type C environment in Figure 1) is best adapted when using a *specialist* or a *differentiated* organization (Hannan and Freeman 1977; Lawrence and Lorsch 1967; Pfeffer and Salancik 1978; Thompson 1967). The rationale is that in highly complex environments, the various functional departments such as marketing and manufacturing need to closely integrate their efforts in order to interpret, and subsequently address, the imperatives of market variability and uncertainty. The opposite is true in stable environments. Because of the predictability of such settings, it has been argued that functional *specialization* or *differentiation* would best address questions of economy and efficiency. In such contexts, deep specialization is likely to lead to higher performance. And because the environment is less variable, the absence of intensive interfunctional coordination is not expected to curtail performance.

Notions of contingency framework have been imported by marketing scholars to study questions of channel strategy and organization (e.g., Dwyer and Oh 1987; Dwyer and Welsh 1985). While the marketing literature has focused on how channels adapt and organize themselves to suit their environments, it has curiously left open the question of whether the better adapted firms are indeed more profitable. We explore both of these questions in this study. That is, we focus on 1) how channels adapt to their environments, and 2) whether there is a correlation between the better adapted firms and performance.

In order to explore these questions, we surveyed manufacturing firms in six sectors of the medical equipment and supplies industry (specifically, adult incontinence, clinical laboratory instrumentation, adult enteral and parenteral nutrition, hospital operating room supplies, medical ultrasound imaging, and respiratory therapy products). We assessed the complexity of the environments faced by these firms, and we asked them how they organized their channel functions or flows (i.e., who performed functions such as product detailing, sales negotiating, and so on). We also recorded how they structured their distribution arrangements (i.e., direct, through distributors, etc.). And finally, we ascertained which of these firms delivered higher performance.

In keeping with the purpose of our inquiry, and in line with the strategic management literature, we focused on the manufacturer's viewpoint because that is where channel strategy decisions are usually made. This represents a departure from previous marketing studies, which have measured channel adaptation from the distributor's point of view. We have assumed that channel decisions, like other marketing mix decisions, are in the producer's domain, and that managers will make strategic choices that are aimed at maximizing their firms' long-run profits. In some cases, this may require the delegation of channel tasks to intermediaries, and in other cases, vertical integration. In some cases, it may require highly participative and decentralized decision-making, while in other cases, it may imply highly centralized decision-making. In some cases, it may involve functional specialization, and in other cases, generalization. It is important to note, however, that whatever the adaptive response, the decisions taken by the firm

are all expected to enhance its performance. And, this is the critical link –the adaptation-performance hypothesis– that we wish to investigate, along with the issue of how channel adaptations occur.

Literature insights

Three important theories, structural contingency theory (SCT) (Lawrence and Lorsch 1967; Thompson 1967; Galbraith 1973), population ecology theory (PET) (Hannan and Freeman 1977), and resource dependence theory (RDT) (Pfeffer and Salancik 1978), provide insights into how organizations adapt to their environments. They are all known as open systems theories because they view organizations as open to the environment, and hence affected by it. SCT, with its origins in the work of March and Simon (1958), asserts as its central theorem that there is no one best way to organize. In general, the expectation is that the better adapted the organization is to its business environment, the more efficient it will be. A key descriptor of the state of the environment is the degree of perceived environmental uncertainty, defined as the variation in information about the environment. Lawrence and Lorsch (1967) introduced two dimensions influencing an organization's adaptiveness: 1) differentiation, the degree to which the firm factors the different tasks into a number of nearly independent parts, and 2) integration (or coordination), the manner of coping with the interdependence generated by these "differentiated" units. From their pioneering study in the chemicals industry, Lawrence and Lorsch (1967) concluded that firms that were both *differentiated* and *integrated* recorded a higher level of performance.

Thompson (1967) illuminated the problem of interdependence raised by Lawrence and Lorsch. He observed that the costs incurred by an organization are higher when it specializes (which is the same as differentiation in Lawrence and Lorsch) highly interdependent activities, and then coordinates them by highly integrative mechanisms. Thompson recommended an aggregation of those tasks most exposed to uncertainty under a *generalist* organization as a way of lowering costs. Galbraith (1973) too, like Thompson (1967), expressed concerns regarding an organization's ability to coordinate interdependent tasks and also process vast amounts of information from an unpredictable task environment. His solutions focused on ways to enable coordination in a more cost-efficient manner.

More recently, SCT is interpreted as a process by which organizations adapt to their strategy (Grandori 1988) rather than the environment. This view is consistent with the observation that different firms operating in the same industry environment may choose different strategies and organizational structures, and yet be all successful in their chosen market niches. The implication is that environmental complexity affects strategic choice, and strategic choice, in turn, influences organizational form. Population ecology theory (PET) (Hannan and Freeman 1977) sheds additional light on this refinement. According to PET, an organization first makes a positioning choice by strategically selecting an environment in which to compete. Next, it adapts internally to this environment by structuring an organization that will be suited to address the needs of its chosen environment. Central to PET is the notion that flexible organizations are not always superior to more mechanistic structures when facing uncertain environments. The specialist organization maximizes efficiency in responding to a single environmental configuration while the generalist organization maximizes efficiency in responding to a variety of environmental configurations. Much like PET, resource dependence theory (RDT; cf. Pfeffer and Salancik 1978) is also a pro-active perspective on organizational adaptation. RDT views the organization as capable of influencing its environment by structuring special arrangements with its inter-organizational collaborators such as customers, suppliers, and distributors, and in some cases, even competitors (e.g., joint ventures, licenses,

etc.). Thus a firm can diminish the impact of an uncertain environment by establishing relationships with other individuals or organizations that are capable of absorbing the environment's uncertainty effects. The choice of collaborators and the nature of collaboration are seen as the firm's strategic decisions.

These three theoretical perspectives, then, contribute in important ways to our understanding of the environment-organization relationship. It is important to underscore that all three perceive uncertainty as a subjective rather than an objective state of the environment. All three frameworks also share a remarkable convergence with respect to adaptation mechanisms: 1) differentiation or specialization is seen as best suited for stable environments, and 2) integration or generalization as most appropriate for volatile environments. Firms exposed to both will obviously need to differentiate and integrate at the same time.

Marketing scholars have attempted to study channel issues very much within the framework set up by these early pioneers in the strategic management field. The chosen dimensions for measuring environmental complexity have typically been heterogeneity and volatility (1), while specialization and generalization have been the two primary measures of coordination. An additional measure, centralization versus decentralization (proposed by Aiken and Hage (1968) and Pugh *et al.* (1968)), is of special relevance for channel decision-making, and has also been extensively used in the marketing literature as a measure of coordination. High centralization and low participation in channel decision-making is reflective of low levels of coordination, and vice versa. *Centralization* is defined as the degree to which individuals or entities influence channel decisions. The smaller the number of influencers, the higher the *centralization,* and the lower the *participation.*

In one of the earliest investigations in this area, an empirical study of eight industries, Etgar (1979) demonstrated that channel leaders emerge in threatening environments. Leaders, according to Etgar, tend to stipulate rather than participate in channel decision-making. Using survey data from retailers in ten industries, Dwyer and Welsh (1985), however, found heterogeneous channel environments (as compared to homogeneous environments) to be directionally (but not statistically) associated with more decentralized decision structures and more retailer involvement in marketing decisions. They also found channels facing a volatile environment to be less hierarchical (i.e., fewer layers of intermediaries between the manufacturer and the end user) compared with their counterparts in stable settings. In short, Dwyer and Welsh's (1985) results seem to indicate that channel configurations are shorter in volatile environments than in stable environments, but that retailers have a larger input into marketing decisions in heterogeneous environments. From a different study, Dwyer and Oh (1987), using data from automobile dealerships, reported that in munificent channel environments, suppliers tended to decentralize channel decision-making. The opposite pattern was found to hold in the case of lean and competitive environments; that is, suppliers tended to centralize and control decision-making under lean conditions. The explanation appears to be that munificent environments facilitate growth

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(1) Measures of environmental uncertainty in the literature have been varied, and were summed up by Aldrich (1979) along six dimensions: 1) Capacity/Scarcity, 2) Homogeneity/ Heterogeneity, 3) Stability/lnstability, 4) Concentration/Dispersion, 5) Domain Consensus/Dissensus, and 6) lnterconnectedness. Different studies have used different subsets of these six measures. Fortunately, Dess and Beard's (1984) definitive empirical study on the core dimensions of environmental uncertainty collapse these dimensions along two key constructs: 1) heterogeneity, or the variability in the critical resources of a business, and 2) volatility, or the degree to which change is unpredictable. These currently remain the most widely accepted measures of environmental uncertainty in the literature.

opportunities for all parties involved, and are usually characterized by less competitive activity and more stability resulting from predictable demand growth. This, in turn, renders direct control unnecessary. Dwyer and Oh's (1987) results are therefore quite consistent with Dwyer and Welsh (1985).

Spekman and Stern (1979), in a study of upstream channels, investigated the links between decision-making adaptation and environmental complexity, and hypothesized that firms operating under conditions of low environmental uncertainty will have 1) more centralized buying groups and lower levels of participation in the purchase decision-making, and 2) higher levels of specialization. They found strong support for the specialization hypothesis, but weak support for the centralization and participation effects. While their work is an upstream supply chain conceptualization, it serves to underscore the convergence in the marketing literature on how channels (upstream or downstream) might adapt to environmental complexity. In summary, then, the following propositions seem to hold:

P_1 *In volatile environments, manufacturers tend to centralize channel decision-making, and seek shorter channels to reach their customers.*

P_2 *In stable environments, manufacturers and distributors tend to specialize in their respective tasks in addressing customer needs. This implies that manufacturers will find distributors to be valuable because of the unique functional specialization that they bring to the transaction. And,*

P_3 *In heterogeneous environments, manufacturers tend to delegate (rather than centralize) key decision-making authority to their channel counterparts.*

Our goal in this paper is to build on the collective wisdom offered by the existing literatures. In investigating channel adaptation to environment, we explore questions of channel structure, decision-making processes (i.e., centralization and participation), and the degree of functional specialization (versus generalization) of channel tasks. Our conceptualization of distribution systems is essentially that of a flow of functions connecting the manufacturer to the customer (cf. Vaile, Grether, and Cox 1959; Bucklin 1967; Stern and El-Ansary 1982). We study the impact of environmental complexity on channel tasks (or functions) instead of institutions. Under this approach, the bundle of channel functions not only connects the boundary of the firm (i.e., the marketing and sales department) to the customer, but extends inward to the core (i.e., the manufacturing department). In a sense, then, we study an integrated distribution pipeline from the factory to the customer.

We believe this to be the appropriate approach to address our goals. Because unlike previous research in marketing, we are not only interested in channel adaptation from the distributors' point of view, but also from a direct salesforce (i.e., manufacturers') perspective. In other words, regardless of the direct versus indirect nature of the distribution arrangement, our goal is to study how channel functions are coordinated. Are they centralized in one or few entities, or are they delegated to many (including distributors)? Are the entities (or individuals) who perform these functions specialists or generalists? As previously stated, the literature suggests that in complex (i.e., heterogeneous and volatile) environments, *generalization* and *centralization* are the appropriate adaptive responses, and that in simple (i.e., homogeneous and stable) environments, *specialization* and *participation* are more appropriate. The better adapted firms, in turn, are likely to return higher performance.

Data collection

Following Lehman (1985), who advocates sampling all significant customers in industrial surveys, we first compiled a comprehensive national list of firms belonging to six sectors of the medical equipment and supplies industry with a market share of at least one percent in their respective sectors. Dunn's Guide to Healthcare Companies (1989-1990) and the Medical and Healthcare Marketplace Guide (1990) were used for this purpose. Together with phone verification, this yielded a total count of 294 firms (1). Prescriptions of total design methodology (Dillman *et al.* 1984; Cragg 1990) were followed in the task of data collection. Questionnaires directed to individuals responsible for marketing strategy decisions (Vice Presidents, Directors, and Marketing Managers in our industry context; cf. Haas and Wotruba 1983) were mailed to each of the 294 firms. Each prospective respondent received 1) a questionnaire, 2) a personalized cover letter, 3) a glossary of terms, and 4) a stamped return envelope, mailed in a personalized envelope. Respondents were promised a copy of the findings for their effort, but no financial inducements were offered. The initial mailing was followed by two rounds of mail reminders, and a phone reminder. A total of 179 of 294 (60.9%) questionnaires were returned; however, twenty-four cases had to be dropped because of incomplete questionnaires and data problems. The effective sample size, therefore, was n = 155, which converts to a final response rate of 52.7% (155/294).

Preliminary steps in questionnaire development and refinement included two rounds of pre-tests with healthcare marketing managers attending a local university's executive development program and several in-depth interviews with purchasing managers of area hospitals and product managers within the healthcare industry. The final version of the questionnaire asked respondents to 1) assess the environmental complexity facing their firms (16 questions), and 2) evaluate their firms' adaptive responses with respect to eight channel functions (4 questions each). See Appendix 1 for a brief description of the independent and dependent measures. Performance indicators and other background information were also gathered as part of the survey.

Measures

Environmental Uncertainty Measures. As previously noted, our environmental uncertainty measures were inspired by Dess and Beard (1984), and accordingly, a battery of sixteen items was developed for this purpose. Table 1 presents the psychometric evaluation of these measures. The items were focused on demand volatility, competitor volatility, demand heterogeneity, and customer heterogeneity, these aspects having emerged as being most pertinent from the pre-test in the context of this industry.

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(1) Initially, 324 firms that passed the one percent market share filter were identified from Dunn's Guide and the Medical and Healthcare Marketplace Guide. However, follow-up phonecalls made to verify the existing listings, and to update the names and addresses of prospective respondents prior to questionnaire mail-out, revealed that 31 of these 324 firms were no longer operating, yielding a final presurvey sampling frame of 294 companies. Interestingly, the phonecalls also revealed an astounding 50% *personnel turnover rate* for vice presidents, directors, and marketing managers in the firms –a trend we ascribe to industry turbulence. Credible claims to the national representativeness of the sample can be made in that *all* firms meeting the one percent cutoff were included in our sampling frame.

Table 1
Description and Assessment of Environmental Uncertainty Measures

A. Varimax Rotated Factor Matrix

Variables ▼ / Factors ▶	Demand Volatility	Competitor Volatility	Demand Heterogeneity	Customer Heterogeneity	Scale Anchors
Principal Competitors	.03045	**.82427**	.07346	–.00922	1 = 10 or More; 5 = None
Competitive Entry	.16210	**.81421**	.10109	–.12754	1 = 10 or More; 5 = None
Competitive Exit	.10093	**.68387**	–.08562	.13961	1 = 10 or More; 5 = None
Demand Patterns	**.46231**	.04327	–.11784	.11419	1 = Unpredictable; 3 = Stable
Technological Change (Past)	**.72319**	.03213	.03205	–.00678	1 = Rapid; 7 = No Change
Technological Change (Future)	**.85153**	.01798	.01633	–.02602	1 = Breakthroughs; 7 = No Change
Untapped Market Potential	**.73392**	.08855	.17812	–.05360	1 = Large; 7 = Small
Business Climate	**.44698**	.12381	–.10895	.01771	1 = Volatile; 7 = Stable
End-User Distribution	–.16539	.16509	**.64223**	.31910	1 = Scattered; 7 = Concentrated
End-User Identification	.04004	–.04224	**.83771**	–.01983	1 = Difficult; 7= Easy
End-User Buying Process	.01052	.00604	**.77868**	.02541	1 = Widely Varying; 7 = Similar
Large Customer Concentration	.07137	–.02738	.08974	**.90664**	1 = Less than 25%; 4 = 75%–100%
Small Customer Concentration	.01497	.03164	.08217	**.90538**	1 = 75%–100%; 4 = Less than 25%
Eigenvalues	**2.519**	**2.124**	**1.646**	**1.464**	**Cum. Var. Explained 59.6%**

B. Reliability and Inter-Trait Correlations

▼Constructs (No. of Items)▶	Demand Volatility **Tl** (5)	Competitor Volatility **T2** (3)	Demand Heterogeneity **T3** (3)	Customer Heterogeneity **T4** (2)
Tl	**.67**			
T2	.2370 (p<.05)	**.69**		
T3	.0677	.0620	**.66**	
T4	.0681	.0300	.1953 (p<.05)	**.83**

C. Unidimensionality (1)

Internal Consistency

Residual Means	.0594	.0393	.0453	.0455
$X^2_{(df)}$ (p – value)	5.81 $_{(df=8)}$ (P>.10)	1.49 $_{(df=1)}$ (p>.10)	2.08 $_{(df=1)}$ (P>.10)	Not Applicable

External Consistency

Mean ø Score	.9544	.9500	.9200	.9900

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(1) ø values and residual scores were computed using formulae proposed by Hunter and Gerbing (1982, pp.278-281) . $X^2 = \Sigma p^2 \cdot \sqrt{n-2}$ where Σp^2 is the sum of squared partials (i.e., residuals), n is the sample size, and DF is defined as number of partials compared minus one. This X^2 test for two-item scales is not possible because df = 0.

Environmental uncertainty measures were evaluated in terms of their reliability, unidimensionality (i.e., the evidence on congeneric measures; Hunter and Gerbing 1982; Jöreskog and Sörbom 1989) and discriminant validity. Unidimensionality was assessed in terms of internal and external consistency (cf. Anderson, Gerbing, and Hunter 1987) using procedures specified by Hunter and Gerbing (1982) (1) with the help of ITAN (Gerbing and Hunter 1988). Internal and external consistency are conceptually analogous to convergent and discriminant validities, respectively (Hunter 1973). Table 1 shows that reliabilities were in the acceptable range (Part B, diagonal entries), and exceed .65 in all cases. The internal consistency of environmental uncertainty is demonstrated by the consistent non-significance of X^2 tests on residuals; similarly, the external consistency claim is supported by the high similarity coefficients (i.e., ø indices) that equal or better .92 (Table 1, Part C; also see footnote).

More evidence of discriminant validity is provided by the comparison of reliabilities and inter-trait correlations among item-summed scales (i.e., all correlations are lower than reliabilities; Table 1, Part B). However, this process of measure purification required the exclusion of three scale items (one volatility item, and two heterogeneity items) originally included in the instrument. A final diagnostic of measures is provided by the principal factors analysis of the final thirteen items (Table 1, Part A), which shows the emergence of four factors, as a priori hypothesized. The four factors cumulatively accounted for 59.6% of the variance in the data.

Channel Coordination Processes. Unlike environmental uncertainty, which was measured using *reflective* indicators, we opted to employ *formative* indicators to tap firms' adaptive response; and our measures were focused on the demand generation and demand fulfillment tasks most relevant from a marketing perspective (cf. LaLonde and Zinsner 1976; also see Schary 1984; Bowersox *et al.* 1980). As noted in the Appendix, these tasks were the four demand generation tasks of 1) product detailing, 2) pricing, 3) price promotions, 4) order-taking, and the four demand fulfillment tasks of l) production scheduling, 2) order fulfillment, 3) inventory support, and 4) customer service. Hence, our measurement strategy was to assess the extent to which firms practiced specialization, generalization, centralization, and participation in performing the aforementioned eight tasks. We also sought to ascertain the nature of the channel structure utilized by the respondent firms (i.e., whether their products were sold *direct* through a company-owned salesforce, or *indirect* through outside distributors or agents, or by a mechanism that combined both direct and indirect approaches).

The decision to employ formative measures for channel coordination was reinforced by the complexity of the measurement task we faced. With our focus on task coordination, we quickly realized that utilizing reflective measures (with an average of five indicators per dimension) would result in an unwieldy questionnaire. That is, channel coordination measurement alone would have required 200 items (i.e., 8 tasks x 5 dimensions x 5 indicators per dimension)! We were concerned that such an approach would result in considerable respondent fatigue and confusion.

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(1) *Internal consistency,* or the extent to which correlations among indicators of a trait are attributable solely to that common trait, was tested by evaluating the residual inter-item correlations with trait effects partialed out (Hunter and Gerbing 1982, p.278). X^2 tests were performed to check the significance of residual correlations. Note that, in the latter case, *non-significant X^2* results signify internal consistency. *External consistency,* or the extent to which correlations among indicators of different traits are solely a function of correlations among the traits themselves, was verified by computing similarity coefficients (ø's) across the full set of items (Hunter and Gerbing 1982, p.281). Table 1 reports mean ø indices (range ±1.0), where ±l.0 scores indicate perfect external consistency.

Psychometric validation of formative measures is considered strictly inappropriate (cf. Howell 1987) because formative indicators follow the operational model philosophy (Bagozzi and Fornell 1982, pp. 33-37). Instead, formative measures, which are more straightforward and less subject to ambiguity and other interpretive confounds, are evaluated based on their content validity and nomological validity (for examples, see Gaski 1986; Heide and John 1988; Reddy and La Barbera 1985).

A series of *a priori* precautions were taken to ensure the content validity of channel coordination formative measures. Content validity focuses on the extent to which the domains of constructs are adequately captured by their operational measures (Nunnaly 1978). Knowledge of the construct domains, then, becomes a critical consideration. We sought to address this by extensively researching industry practices, and including only those channel coordination tasks and departments/entities that were relevant to our investigation. We sought further verification of our exploratory insights by consulting two faculty colleagues and two industry consultants who are experts in this field. Finally, we point to the two pre-tests and in-depth interviews described earlier; the latter did not reveal any content problems related to our measurement strategy.

The nomological validity assessment of adaptive response measures is presented in Table 2. Nomological validity tests seek to confirm the interrelationships that are widely known and expected to hold (Churchill 1995). In our case, if the expected nomological net holds, our measures of adaptive response should display sensible and plausible relationships among themselves. We sought to evaluate this by checking if the various functions to be performed were correctly matched with the departments that could be expected to perform them. As the results show, the anticipated pattern was supported by the data. For example, the product detailing function is shown as largely handled by the sales department, pricing by the marketing department, the production scheduling function by the production department, and so on. In general, then, Table 2 holds up to a priori expectations in a robust manner, increasing our confidence in the validity of the data.

Peformance Measures. The performance of the firm was evaluated using two self-reported measures. Respondents were asked to provide ratings of 1) the approximate market share ranks of the firms in their product group (response range was: first, second, third, fourth, and fifth or lower), and 2) the overall profitability of the firm (response categories were: below industry average, about industry average, and above industry average). Firms with a market share rank of first or second and with average or higher profitability were classified as *High Performance* firms, while the remainder were designated *Low Performance* firms. We would have liked more precise information on sales, profits, and market share for categorizing firms; however, while pre-testing, we discovered that many respondents considered such information too sensitive to reveal. We therefore framed our questions using ordinate scales.

Table 2

Patterns of Adaptive Activity: A Nomological Evaluation

	Parties		Sharing		Responsibility		
▼ **Activities**	**Marketing**[1]	**Sales**[1]	**R&D/ Engineering**[1]	**Production**[1]	**Agents/ Distributors**[1]	**Top Management**[1]	**Customer Service**[1]
Product Detailing	30.3%	81.3%	6.5%	1.3%	27.1%	9.0%	4.5% [2]
Pricing	81.3	34.8	1.9	1.3	7.1	44.5	1.3[2]
Price Promotions	58.7	52.3	0.6	0.6	9.7	34.8	2.6[2]
Order Taking	7.1	58.1	0.6	1.9	29.7	3.9	56.1[2]
Production Scheduling	31.6	7.1	5.2	78.7	0.6	19.4	2.6[2]
Order Fulfillment	11.6	13.5	1.9	46.5	23.9	6.5	48.4[2]
Inventory Support	18.7	7.1	0.6	65.8	17.4	23.2	16.1[2]
Customer Service	33.5	47.7	7.7	9.0	16.1	16.1	71.0[2]

[1] The column entries show the frequency with which the various departments are cited as having decision-making responsibilities for the specific channel tasks expressed as a percentage of the total number of firms (n = 155). Multiple responses were permitted.

[2] All row-wise oneway X^2 tests were statistically significant with $p < .001$

Data analyses and results

Recall that, supporting our a priori expectations, the factor analysis of the environmental uncertainty measures had yielded four factors (*demand volatility, competitor volatility, demand heterogeneity,* and *customer heterogeneity* (Table 1, Part A)). We next composed factor scores for each firm along these four dimensions (i.e., the four factors) using coordinate information from the factor solution. These scores became the inputs for a hierarchical cluster analysis (Table 3) designed to identify industry groups (1).

The cluster analysis isolated three distinct groups in the sample. As the means of Table 3 attest, these groups differ in the way they perceive the environments confronting their firms. The inferential statistics also suggest differences amongst the three groups (Table 3, lower half). MANOVA points to the overall differences, while ANOVAs show that significant group differences persist along all four factors (2). Finally, Duncan's tests find most group comparisons to be significant in specific comparisons. In sum, cluster analysis yielded clearly demarcated, internally valid industry groups with significant differences along the theoretically meaningful variables of perceived heterogeneity and volatility. The contrast between Cluster 1 and Cluster 2 is particularly noteworthy. Cluster 1 mean scores are lower than Cluster 2 for all four factors, three of them statistically so. The differences suggest that Cluster 1 firms see their environments as more volatile and more heterogeneous, while the opposite is true for Cluster 2 firms, which interpret their environment as relatively stable. Hence, in keeping with our earlier reasoning, we dub Cluster 1 as the *complex environment group* and Cluster 2 as the *simple environment group.*

The interpretation of Cluster 3, however, which we name the *mixed environment group,* is not as clear. Cluster 3 clearly falls in between Clusters 1 and 2, and displays intermediate levels of demand volatility, competitor volatility, and demand heterogeneity, and high levels of customer heterogeneity. In effect, Cluster 3 does not anchor either the complex or the simple end of the environmental scale. Because our goal was to evaluate the impact of uncertainty on organizational adaptation, for the remainder of this study we focus only on Clusters 1 and 2, as they represent clear, theoretically-vested contrasts between complex and simple environments.

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(1) The hierarchical clustering approach initially designates each respondent as a unique cluster, and then successively merges respondents/clusters until all respondents that display similarity of response patterns are included within single clusters. Squared Euclidean distance and Ward's linkage method, respectively, were used as the proximity measure and the clustering algorithm; their choice appearing appropriate in the current task (cf. Hair, Anderson and Tatharn 1987; Punj and Stewart 1983). Since cluster solutions are not inferentially based, successful internal and external validation using probabilistic statistics acquire critical significance (cf. Speece, McKinney and Appelbaum 1985). Consequently, both forms of validity were checked for and found to hold (Table 3).

(2) MANOVA is a useful technique when there are multiple intervally scaled criterion variables and one categorical predictor variable (Green 1978). MANOVA seeks to check for differences among the population centroids across predictor variables. Further analyses to determine the precise sources of significant differences are traditionally attempted by t-tests when only two groups exist or by ANOVA, and post-ANOVA simultaneous paired comparisons (e.g., Duncan's test), in a more than two group setting.

Table 3

Cluster Analysis Results: Description and Internal Validation

Constructs▼	Description of Clusters[1]					
	Cluster 1 N = 61 **High Volatility/** **High Heterogeneity**		*Cluster 2* N = 40 **Low Volatility/** **Low Heterogeneity**		*Cluster 3* N = 54 **Moderate Volatility/** **Moderate Heterogeneity**	
Cluster Size ▶ Cluster Type ▶	**Complex** **Environment** **Group**		**Simple** **Environment** **Group**		**Mixed** **Environment** **Group**[2]	
Description	**Means**	**Std. Dev.**	**Means**	**Std. Dev.**	**Means**	**Std. Dev.**
Demand Volatility	2.997	.655	4.515	.553	3.515	.805
Competitor Volatility	3.339	.701	3.958	.371	3.784	.430
Demand Heterogeneity	4.880	.775	5.283	.722	4.821	1.039
Customer Heterogeneity	3.107	.448	3.125	.449	1.898	.586

Internal Validation

Univariate Summary (Anova)	F-Ratio (p-value)		Power of Test $(1-\beta)$	Duncan's Paired Comparison Significant at .05
Demand Volatility	59.04148	(.00)	.99	All Pairs
Competitor Volatility	18.18186	(.00)	.99	Clusters 1&2, 1&3
Demand Heterogeneity	3.75648	(.03)	.68	Clusters 1&2, 2&3
Customer Heterogeneity	103.69315	(.00)	.99	Clusters 2&3, 1&3
Multivariate Summary (Manova)	47.81986	(.00)	.99	

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[1] Smaller mean values show greater levels of volatility and heterogeneity.

[2] This cluster was dubbed *mixed* because its means fall between the Complex Environment and Simple Environment groups for all
   factors except customer heterogeneity (which was at the high extreme).

Impact of Environmental Uncertainty

Overall, as Table 4 documents, few significant differences in the manner in which firms organize the eight channel tasks were traceable to the firms' perception of their environments as complex or simple. Directionally, however, firms in simple environments "specialized" more in the demand-generating activities of product detailing, pricing, and price promotions; while firms in complex environments "generalized" more in the same activities. In both environmental contexts, *centralization* for the eight channel tasks did not significantly differ across the groups. About the same pattern held for *participation* as well. A larger number of departments/entities (about 3 on the average for participation as compared to 1.6 for centralization) provided decision-making inputs for organizing the eight channel tasks. The level of participation was especially higher for the demand-generating activities of product - detailing and pricing, and for the customer service task in contrast to other tasks. Nevertheless, no group differences were found to be significant for any of the eight tasks.

Finally, turning to channel structure as an adaptive reaction to environmental turbulence, we found no differences between the two groups: 32.8% direct and 8.2% indirect for the complex environment group versus 35% direct and 10% indirect for the simple environment group (Table 5). Both groups used a high proportion of multiple distribution strategy (i.e., a combination of direct and indirect distribution): 60.7% and 55%, respectively. At a first cut, then, the manner in which firms perceive and interpret environmental uncertainty does not seem to have a major impact on how they adapt and organize the eight channel tasks or the channel structure. We next evaluate the channel strategy differences between the two groups, controlling for their level of performance as high versus low. Recall that, in accordance with strategic contingency theory, we would expect the higher performing firms to be better adapted to the environment. As previously noted, firms with a market share rank of first or second and with average or higher profitability were classified as *High Performance firms* (n = 83); while the remainder were designated as *Low Performance* firms (n = 72). The final breakout was as follows: Complex Environment-High Performance firms (n = 32); Complex Environment-Low Performance firms (n = 29); Simple Environment-High Performance firms (n = 26); and Simple Environment-Low Performance firms (n = 14).

Combined Influence of Uncertainty and Performance Differentials

For reasons of clarity, the results of the combined effects of performance and uncertainty are presented separately in Table 6 (for *Complex Environment* setting) and Table 7 (for *Simple Environment* setting). In contrast to Table 4 results, Tables 6 and 7 reveal a number of statistically significant patterns that are theoretically consistent with the literature.

As predicted by theory, high performers in complex environments opt for lower specialization and higher generalization of the four demand-generating activities (i.e., product detailing, product pricing, price promotions, and order taking; see Table 6). And consistent with theory, high performers follow the exact opposite adaptive response in simple environments (Table 7). Here they specialize significantly more and generalize significantly less than the low-performing firms in demand generation tasks. However, the results are ambiguous for the demand fulfillment tasks, and the directionality of the differences is reversed in several cases (e.g., production scheduling task in Table 6). Our hunch is that of the demand fulfillment tasks, order fulfillment and customer service are perhaps more directly related to channel organization than production scheduling and inventory support. For these two functions, the directionality is in line with theoretical predictions in 3 out of 4 cells. Nevertheless, our conclusion is that, in general, demand fulfillment functions are less adapted to environmental changes.

Table 4

Impact of Environmental Uncertainty on Adaptive Response

Perception of Environment ▶	Specialization[1]			Generalization[1]			Centralization[2]			Participation[2]		
	Complex	Simple	*p-value*	Complex	Simple	*p-value*	Complex	Simple	*p-value*	Complex	Simple	*p-value*
Activities ▼												
Product Detailing	40.7%	57.9%	.04	23.7%	15.8%	.16	1.61	1.55	.75	3.00	3.13	.61
Pricing	15.3%	26.3%	.08	37.3%	26.3%	.12	1.75	1.63	.45	3.15	3.00	.54
Price Promotions	13.6%	26.3%	.05	45.8%	31.6%	.07	1.67	1.55	.43	2.77	2.80	.89
Order Taking	52.5%	47.4%	.31	23.7%	26.3%	.38	1.64	1.55	.61	2.38	2.58	.36
Production Scheduling	49.2%	44.7%	.33	13.6%	18.4%	.25	1.53	1.45	.65	2.71	2.70	.99
Order Fulfillment	44.1%	50.0%	.28	23.7%	13.2%	.09	1.67	1.63	.79	2.77	2.80	.91
Inventory Support	32.2%	31.6%	.48	18.6%	23.7%	.26	1.53	1.60	.71	2.61	2.93	.24
Customer Service	61.0%	52.6%	.20	18.6%	10.5%	.13	2.25	2.03	.48	3.39	3.58	.59
							Manova Outcome		*ns*	*Manova Outcome*		*ns*

[1] The column entries show the number of firms indicating the adaptive response of *specialization* or *generalization* for specific channel tasks expressed as percentages of the total number of firms in their respective environments; that is, complex environment (n=61) and simple environment (n=40). Their differences are evaluated using the z test of proportions.

[2] The column entries show the mean number of departments/entities with decision-making responsibility (i.e., *centralization*) or the mean number of departments/entities that participate and provide input for (i.e., *participation*) the specific channel tasks in the complex environment (n=61) and the simple environment (n=40) clusters, respectively. Their differences are inferentially evaluated using post-MANOVA t-tests.

Table 5

Patterns of Adaptive Activity: Channel Configurations

Channel Configuration ▼	Complex Environment	Simple Environment	Complex Environment		Simple Environment	
			High Performers	Low Performers	High Performers	Low Performers
Direct Distribution	32.79%	35.00%	47%	14%	39%	25%
Indirect Distribution	8.20%	10.00%	6%	10%	11%	8%
Both Direct & Indirect Distribution	60.66%	55.00%	47%	76%	50%	67%

Table 6

Combined Impact of Environmental Uncertainty and Performance Differentials on Adaptive Response

	Within						*Complex*			*Environment*		
	Specialization[1]			Generalization[1]			Centralization[2]			Participation[2]		
Firm Performance ▶	**High**	**Low**	*p-value*	**High**	**Low**	*p-value*	**High**	**Low**	*p-value*	**High**	**Low**	*p-value*
Activities ▼												
Product Detailing	**36.7**	**46.4**	**.000**	**30.0**	**17.9**	**.000**	1.68	1.55	.62	2.90	3.10	.54
Pricing	**13.3**	**17.9**	**.000**	**43.3**	**32.1**	**.000**	1.74	1.72	.93	2.90	3.38	.13
Price Promotions	**10.0**	**17.9**	**.000**	**60.0**	**32.1**	**.000**	1.68	1.62	.77	2.71	2.79	.76
Order Taking	53.3	53.6	.44	**30.0**	**17.9**	**.000**	1.51	1.72	.37	2.07	2.62	.04
Production Scheduling	53.3	46.4	.000	16.7	10.7	.000	1.48	1.52	.87	2.55	2.83	.45
Order Fulfillment	40.0	50.0	.000	33.3	10.7	.000	1.68	1.62	.80	2.52	3.03	.13
Inventory Support	36.7	28.6	.000	16.7	21.4	.000	1.52	1.55	.89	2.45	2.79	.32
Customer Service	70.0	50.0	.000	23.3	14.3	.000	2.13	2.31	.67	3.19	3.59	.35
							Manova Outcome		*ns*	*Manova Outcome*		*ns*

[1] The column entries show the number of firms indicating the adaptive response of *specialization* or *generalization* for specific channel tasks expressed as percentages of the total number of firms in the corresponding cells. Their differences are inferentially evaluated using the z test of proportions.

[2] The column entries show the mean number of departments/entities with decision-making responsibility (i.e., *centralization*) or the mean number of departments/entities that participate and provide input for (i.e., *participation*) the specific channel tasks. Their differences are inferentially evaluated using post-MANOVA t-tests.

16

Table 7

Combined Impact of Environmental Uncertainty and Performance Differentials on Adaptive Response

Firm Performance ▶	*Within*						*Simple*			*Environment*		
	Specialization[1]			Generalization[1]			Centralization[2]			Participation[2]		
Activities ▼	High	Low	*p-value*	High	Low	*p-value*	High	Low	*p-value*	High	Low	*p-value*
Product Detailing	**69.2**	**27.3**	**.000**	**7.7**	**27.3**	**.000**	1.44	1.83	.12	3.07	3.33	.50
Pricing	**30.8**	**9.1**	**.000**	**15.4**	**45.5**	**.000**	1.59	1.67	.80	3.00	3.00	.99
Price Promotions	**30.8**	**9.1**	**.000**	**23.1**	**45.5**	**.000**	1.56	1.50	.83	2.82	2.75	.83
Order Taking	**50.0**	**36.4**	**.000**	**23.1**	**27.3**	**.02**	1.48	1.67	.48	2.63	2.33	.37
Production Scheduling	38.5	54.5	.000	23.1	9.1	.000	1.44	1.50	.83	2.56	3.08	.16
Order Fulfillment	50.0	45.6	.07	11.5	9.1	.009	1.59	1.67	.77	2.70	2.83	.77
Inventory Support	30.8	27.3	.12	19.2	36.4	.000	1.63	1.50	.72	3.04	2.67	.43
Customer Service	53.8	45.6	.003	7.7	9.1	.08	2.00	2.08	.86	3.56	3.42	.81
							Manova Outcome		*ns*	*Manova Outcome*		*ns*

[1] The column entries show the number of firms indicating the adaptive response of *specialization* or *generalization* for specific channel tasks expressed as percentages of the total number of firms in the corresponding cells. Their differences are inferentially evaluated using the z test of proportions.

[2] The column entries show the mean number of departments/entities with decision-making responsibility (i.e., *centralization*) or the mean number of departments/entities that participate and provide input for (i.e., *participation*) the specific channel tasks. Their differences are inferentially evaluated using post-MANOVA t-tests.

In summary, we find high performers following the specialist coordinative approach for the demand-generating tasks significantly more frequently than the low performers in simple environmental settings (Table 6); and in complex environmental settings, high performers follow the generalist coordinative approach more frequently than low performers (Table 7). No such consistent pattern emerges for the demand fulfillment tasks. No significant patterns emerge with respect to the *centralization* and *participation* adaptive responses either. As Tables 6 and 7 show, both high and low performers seem to concentrate decision-making in one or two departments or entities, with an additional member participating with inputs for that decision. When analyzing channel structure, interestingly, the high performing firms were consistently more *direct* regardless of the environment in which they operated (Table 5). These numbers, however, should be interpreted with caution because, on an absolute basis, both high-performing and low-performing firms in a majority of cases used the channel strategy of combining direct and indirect distribution (see Table 5).

Discussion & Conclusions

Two interesting insights emerge from our study. First, consistent with the findings in the strategic management literature, we found that the better adapted firms delivered better performance. In complex environments, characterized by high volatility and heterogeneity, it seems best to deliver demand-generating channel functions to customers through generalists who have responsibility for multiple tasks. This adaptive response is aimed at ensuring effective inter-functional and inter-task coordination. Thus, for example, sales negotiating, pricing, and price discounting might all be delivered through the salesforce, circumventing the need for elaborate coordination among three individuals or departments who are specialists in those individual tasks. A generalist approach offers quicker decision-making as a way to absorb the uncertainties in the environment.

In contrast, we found that the high-performing firms in simple environments preferred to deliver channel functions through specialists. Because of the predictability of such environments, inter-functional coordination across several specialists did not pose organizational problems. Specialization probably improved the efficiency of the channel function execution. But interestingly, this does not imply that the successful firms would employ longer distribution channels in simple environments. Intriguingly, high performance firms in both complex and simple settings used a higher proportion of direct channels than their less successful counterparts. The adaptive action seems to be in the process of coordination rather than in the channel structure.

The second important insight from the study was the lack of results for the centralization and participation processes. One would have expected the more specialized firms to be more centralized, and the more generalized firms to be more participative. Contrary to these expectations, generally only one to two departments or entities appeared to have the main decision-making authority for each of the channel functions; and usually, an additional member was involved in providing inputs for those decisions. What these results indicate is that adaptive responses are far more subtle than we had hitherto imagined. In other words, when confronted with (say) a turbulent environment, manufacturers do not go about arbitrarily shortening their distribution channels. One does not see channel relationships being terminated that quickly. And by the same token, one does not see a sudden spurt in long channels with the arrival of stability in the marketplace. In fact, manufacturers seem to pretty much work within the constraints of their existing channel system, but the better-performing firms seem to handle the change by redefining the roles and responsibilities

underlying the performance of the channel functions. The number of entities participating in decision-making does not change, only their role becomes more specialist or more generalist, depending on the nature of the environment.

In order to better understand this intriguing process of channel adaptation, we followed our survey-based investigation with field research visits to three of the firms included in the sample. Two of them had been identified as high performers, and the third as a low performer. Two of them described their environment as stable, while a third perceived it as volatile. Table 8 provides a brief description of the three business units, which we shall, for convenience, refer to as companies X, Y, and Z, respectively.

Table 8

Follow-Up Field Research: A Brief Description of Companies X, Y and Z

	Company X	Company Y	Company Z
Product	Equipment	Equipment	Supplies
Size (Sales)	$ 150 m	$ 20 m	$ 100 m
Perceived Environment	Complex	Simple (But getting considerably more complex)	Simple (But was considerably more complex in the past)
Self-Rated Performance	High	Low	High
Channel Adaptation	A multiple channel of direct salesforce and distributors altered to an exclusive direct salesforce channel.	An exclusive channel of direct salesforce altered to a multiple channel combining direct salesforce and manufacturers' reps.	A multiple channel of salesforce and distributors *before* and *after* the environment changes. But the direct salesforce channel performing additional functions after the change.

Company X, at the time of the study, sold its range of ultrasound equipment and respiratory therapy products through its direct salesforce of nearly 150 representatives. But until two years before that, the company had sold its products through the combined efforts of nearly 100 salespeople and almost 100 distributors. But then, in addition to its ultrasound and respiratory therapy products, the company had also sold medical supplies and gases as well.

According to its CEO:

We made a strategic decision to exit from the commodity end of our business. We were not making money on the supplies and the gases, and it made sense to exit those businesses... But if all you have is value-added equipment, a salesforce is a much better way to sell those products in our industry. First of all, products are high technology in nature, requiring careful and sophisticated presentation to the end-

user. Slowly, over the years, our salesforce was actually performing most of this customer education anyway... And in any case, as part of our overall product strategy, we were planning to launch a series of high technology products like CPU Ventilators, and Patient-Care Monitors, all of which would have required a concerted educational effort.

Our channel strategy was not that much a response to environmental changes, as it was a sensible projection of our own product strategy... The uncertainty of a high technology, high value-added business could be better handled by our salesforce than by our distributors.

The president of Company Y, a supplier of Clinical Laboratory Instrumentation, described the evolution of his firm's channel strategy as follows:

We were, and still are, a small, high-technology start-up. Our instrumentation has a rather steep price tag because of the software development accompanying it. But frankly, it is not an immediate purchase item for most of our customers. Ours is not a piece of critical care equipment. We first started by selling this product with a small sales team directly to regional hospitals. Our plan worked great initially. But with a small window of opportunity, we needed to get out there and install our equipment at many sites. The real profit is in the after-sales of modular upgrades. So in order to get coverage, we sought manufacturers' reps to sell and support our products.

They did a reasonable job of selling the product, but they have little patience with long sales-cycle products like ours. Moreover, they are not terribly service-oriented. And nowadays, hospital customers demand the very best in service. They are outsourcing everything. We would like to pull back now and convert all rep territories to direct distribution. But that is proving to be a monumental task... We have installations and opportunities to become very profitable, but our channel structure is inhibiting our performance... We are now learning to work and educate our reps to be more service-sensitive. It will help them, but more importantly, it will help us.

The managers of Company Z saw themselves as operating through distributors, both in the past when their business environment was more volatile, and at the time of our study when things were somewhat steady. According to this company's Sales VP:

The DRG [diagnosis related groups] legislation in 1983 was indeed a turning point for hospital buyers. Frequently purchased supply items like ours came in for much closer price scrutiny. Hospitals facing severe cost pressures at their end started to put out spec. items like ours on bid too... This was a big transition for us because even though our products are low value supplies, we have worked very hard to differentiate them in the eyes of the end-users.

We had no choice but to work directly with our hospital customers to ensure that we made it to the shortlist; in fact, most of our 65 salespeople took on the price and contract negotiating role. They had never done that in the past, their job then was to influence the end-user to specify our products. Our distributors actually booked the orders. Even in the new system, our distributors are very much in the picture. They perform the actual physical distribution and order fulfillment tasks. In short, we haven't altered our distributors. We are very loyal to them, and they are very loyal to us, but our salesforce is considerably more active in negotiating the sale.

A comparison of how these three firms adapted their channel strategies is indeed insightful. Companies X and Z are both high performers, but while X implemented a dramatic change in its channel strategy in response to the changes in its product/market strategy, Z apparently did not alter its channel configuration, even though it was faced with very volatile changes in its buying environment. Its 65-strong salesforce and 100 distributors pretty much remained in place. But that external observation is misleading, because in reality its salesforce took on the important sales negotiation function directly. Prices, price discounts, and order quantities, in turn, were now fundamentally effected by the company salesforce, and not the distributors. In a very subtle manner, the distributor strategy of firm Z had evolved to become much more direct, even though its distributors continued to perform the order fulfillment functions. Company Y, on the other hand, which made the initial adaptation to include the manufacturers' reps, has found it hard to disentangle itself from its rep channel in anticipation of a complex environment. This firm's own assessment places it as a low performer in the industry.

Many interesting conclusions emerge from a comparison of these firms' distribution strategies. First, consistent with theory, firms in general seem to be well aware of the need to adapt channel strategy to reflect changes in the environment. Second, not all of them, however, are able to successfully implement the transition, especially those wishing to replace *indirect* with *direct* distribution (Firm Y). The successful transitions appear to be better supported by internal (e.g., product strategy) rather than external (e.g., customer buying needs) changes (Firm X versus Firm Y). As one industry executive explained to us:

> We call that a bird-in-the-hand syndrome. While it is easy to see why a direct channel would be useful, the downside risk of channel conflicts and lost sales is often a formidable mental barrier to cross.

Third, channel strategy changes are not necessarily structural in a manifest sense. It is possible to mimic a *direct* or an *indirect* channel by carefully allocating responsibilities for channel processes and tasks (e.g., Firm Z).

Field research also points to some new contingency variables not explicitly envisioned by previous studies. For instance, the differences in the adaptive postures of Firm X and Firm Y may be traceable to Firm X's "deep-pockets." Similar instrumental theoretical explanations can also be proposed in the language of economic and market power, and the confidence it bestows on the power-wielders. Alternatively, we can interpret Firm X's behavior as rationally dictated by its product management needs for high-tech, educational detailing, no doubt generously facilitated by its deep-pockets and market power.

Much of this richness stems from the fact that adaptation issues are examined from the manufacturers' rather than the distributors' perspective. With a more comprehensive set of issues to balance, manufacturers probably make complex trade-offs in arriving at adaptive decisions. Very likely, a combination of contingent effects could be driving most of their channel-related decision-making. Marketing researchers, then, would do well to study firms' adaptive patterns from the manufacturers' perspective, and develop theoretical frameworks that can capture the contingency complexities confronting manufacturers. A holistic approach may prove appropriate here. We also strongly advocate the functional task approach to examining adaptive responses. Such a micro-level analysis is more capable of detecting subtle transformations occurring in firms, and may arguably be more illuminating. The corporate restructuring taking place in North America and elsewhere, and the resultant trimming of management layers, also implies that in the future organizational adaptation will be increasingly more focused at the functional levels.

Potential limitations of this study involve the non-assessment of the effects of past environmental turbulence, and the ensuing adaptive responses of the surveyed firms. Firms accustomed to habitually high levels of environmental uncertainty may have evolved (in a learning curve sense) by amassing a rich pool of adaptive heuristics and survival mechanisms. Such experiential savvy would presumably allow these firms to more accurately interpret their environments, and perhaps even cause them to ignore certain environmental upheavals as trivial or minor, and/or to efficiently counter them using true and tried stratagems. In contrast, the adaptive responses of firms that have historically operated in placid environmental conditions could be significantly different. They could find change hard to envision and implement because of complacency or inertia. Exchange theory suggests that the referent structures evoked play a key role in parties' responses to stimuli (Thibaut and Kelley 1959). Accordingly, the effects of history on these referent structures are likely to be significant, and require longitudinal data for evaluation. In a similar vein, direct measures of change –that clearly ask respondents to report and compare current conditions to the erstwhile situation— would greatly help to clarify our inferences regarding the adaptive behavior of firms. Though this criticism applies to most investigations in this field, it remains a relatively simple alternative to solely cross-sectional conclusions based on the between-subjects logic. Finally, our findings are clearly bounded by the contextual artifacts of the medical equipment and supplies channels. As such, they may not be generalizable across other industries and alternative channel contexts. □

Appendix

Operationalization Details

Environmental Uncertainty	**Abbreviation**
How many principal competitors do you have for the product group?	*Principal competitors*
How many new competitors have entered the product group market in the last 3 years?	*Competitive Entry*
How many competitors have left the product group market in the last 3 years?	*Competitive Exit*
Did your company enter the business as pioneer, one of the pioneers, early follower, or late entrant?	**Item Deleted**
How would you characterize the industry demand pattern?	*Demand Patterns*
How would you characterize the rate of change of technology in the product group over the last 3 years?	*Technological Change (Past)*
How would you characterize the anticipated changes in technology for the coming 3 years?	*Technological Change (Future)*
Overall, how familiar are the customers with the current product technology?	**Item Deleted**
Would you consider the untapped market potential in the next 3 years to be large or small?	*Untapped Market Potential*
How would you characterize the environmental changes for the product group market the last 3 years?	*Business Climate*
How would you characterize the overall demand for all products in the product group in the last 3 years?	**Item Deleted**
In general, end-users for the product group are scattered or concentrated?	*End-User Distribution*
In general, end-users for the product group are difficult to identify or easy to identify?	*End-User Identification*
In general, end-users for the product group have widely varying or similar buying processes?	*End-User Buying Process*
What proportion of the product group revenues are accounted for by your largest 20%-30% of end users?	*Large Customer Concentration*
What proportion of the product group revenues are accounted for by your small end users?	*Small Customer Concentration*

Functional Tasks and Activities

Demand Generation Tasks	*Demand Fulfillment Tasks*
Product Detailing	Production Scheduling
Pricing	Order Fulfillment
Price Promotions	Inventory Support
Order-Taking	Customer Service

Appendix (continuation)

Operationalization Details

Specialization

The extent to which the eight channel tasks were performed by individuals, groups, or departments that *specialize* solely in those tasks/activities.

Generalization

The extent to which the eight channel tasks were performed by individuals, groups, or departments that perform *several* tasks/activities without specializing in any one.

Centralization

The extent to which various departments/entities had *decision-making responsibility* for the eight channel tasks. Respondents were asked to check *all* the relevant departments/entities for each task. Seven departmental entities (i.e., marketing, sales, R&D/engineering, production, agents/dealers/distributors, top management, and customer service) were explicitly named, and an additional Other category was also available to the respondents. Centralization, therefore, was measured by the number of checks received for each channel task. The *smaller* number, therefore, indicates greater centralization.

Participation

The extent to which various departments/entities *participated and provided input* for the eight channel tasks. Respondents were again asked to check *all* the relevant departments/entities for each task. Once again, respondents were provided the names of seven departments/entities (as noted above) and the Other response category. Participation, thus, was inferred from the number of checks received for each channel task. The *larger* number, therefore, indicates greater participation.

Integration

The extent to which firms had selected the options of direct distribution (e.g., use of company salesforce or company-owned distributors/dealers to reach end-users), indirect distribution (e.g., use of independent distributors/dealers to access the end-users), or multiple distribution (i.e., some combination of direct and indirect distribution strategies).

Performance

What is your approximate market share rank in the product group?
On average, is your overall profitability for this product group below industry average, about industry average, or above industry average?

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