Performance differences between entrepreneurial and non-entrepreneurial firms

Extending the strategy–structure–performance paradigm

Daniel F. Jennings and Kevin G. Hindle

Abstract: *This paper extends the strategy–structure–performance paradigm to examine the performance differences between entrepreneurial and non-entrepreneurial electrical distribution firms. The results indicate that both entrepreneurial and non-entrepreneurial electrical distributors with an optimal strategy–structure alignment tend to have a higher organizational performance than those entrepreneurial and non-entrepreneurial electrical distributors without such an alignment. The results are examined and conclusions are offered. Finally, the implications for future research are set out, as are the limitations of the present study.*

Keywords: *business strategy; entrepreneurial organizations; organizational performance; organizational structure*

Daniel F. Jennings is with the Dwight Look College of Engineering, Texas A&M University, College Station, TX 77843-3367, USA. E-mail: djennings@entc.tamu.edu. Kevin G. Hindle is with Swinburne University of Technology, Hawthorne, Victoria 3122, Australia. E-mail: khindle@swin.edu.au.

Chandler (1962) studied large US firms and observed that declines in performance were related to the misalignment between corporate strategy and the administrative activities of those firms. Accordingly, the notion that 'structure follows strategy' was developed, which led to the emergence of the M-form of organization as well as the strategy–structure–performance (SSP) paradigm (Tsoukas and Knudsen, 2006). Later, Bower (1970) extended the SSP paradigm by arguing that 'strategy follows structure'. Thus, during the 1970s and 80s, considerable debate was focused on the SSP paradigm and numerous research studies were published pertaining to that debate (Zott and Amit, 2007). Many management scholars tend to assume that the strategy–structure–performance model is well settled because of its narrow focus (Mendelson, 2000). Interestingly, Miller (1986, p 233) reports that 'there is much more to the concepts of both strategy and structure and that additional research is needed in their alignments'. Recently, studies have been published that have extended the strategy–structure–performance model to new areas. Such areas include the alignment of organizational structure and product-market strategies (Zott and Amit, 2007; Simonson, 2005; Siggelkow and Levinthal, 2003); how the alignment between business-level strategy and organizational structure affects

corporate governance (Yin and Zajac, 2004; Toms and Wright, 2002; Wright, Hoskisson and Busenitz, 2001); how the alignment of business-level strategy and organizational structure affects information technology (Davenport and Harris, 2005; MacCormick, Verganti and Iansiti, 2001; Mendelson, 2000). Further, implications of the strategy–structure alignment have recently appeared in the literature regarding entrepreneurial firms. For example, Zott and Amit (2007) investigated how the design of boundary-spanning transactions (business model design) affected the performance of entrepreneurial firms. In their study, Zott and Amit (2007) found that attempts to incorporate both efficiency- and novelty-centred design elements into their business models may have been counterproductive and suggested that the SSP paradigm should be used in research involving entrepreneurial organizations (EOs). Westerman, McFarlan and Iansiti (2006) found that the organizational designs that fitted early strategic contingencies tended not to fit later ones, while Galunic and Eisenhardt (2001) argued that it was difficult for organizations to become innovators because of strategy–structure misfits.

To date, studies comparing the effects of strategy–structure alignment on the performance of entrepreneurial and non-entrepreneurial firms are almost nonexistent. This paper builds on earlier work pertaining to the relationship between strategy, structure and performance, and extends this relationship by comparing the strategy–structure–performance relationship of entrepreneurial and non-entrepreneurial firms. We argue theoretically and show empirically that (1) certain entrepreneurial and non-entrepreneurial organizations will have both a prospector strategy–organic structure and a defender–mechanistic structure and that performance differences will occur among those configurations, and (2) those organizations having the best strategy–structure alignment will have the highest performance.

Our study makes several contributions to the strategic management literature. First, we contribute to the literature by developing a fine-grained concept for operationalizing and measuring the alignment between business-level strategy and organizational structure. Second, we provide an extension of the strategy–structure–performance perspective by comparing entrepreneurial and non-entrepreneurial firms within the same study. We believe that this is the first study to do so. Third, we draw on a unique data set that we have collected ourselves. Fourth, our findings have implications for both researchers and practising managers. Our study also contributes to the literature on entrepreneurship by highlighting the role that the alignment of strategy and structure has in the performance of entrepreneurial firms.

The next section presents our definition of business-level strategy, organizational structure, performance and our hypotheses. This is followed by sections describing our data, methods and results. We conclude with a discussion of our findings, implications of our study for future research and the limitations of this study.

Definitions and hypotheses

Strategy

Researchers have developed classifications called typologies to provide operational definitions of business-level strategy. Two widely used typologies are Porter's (1980) Generic Strategies and the Miles and Snow (1978) Typology. In this study, we measured business-level strategy by using the Miles and Snow (1978) Typology.

A number of researchers state their preference for using Miles and Snow's strategy types because theirs is the only typology that characterizes an organization as a complete system and it provides a useful format for studying successful implementation of different strategies (Croteau and Bergeron, 2001; Lengnick-Hall, 1992; Hrebiniak and Snow, 1980). Also, several researchers report that entrepreneurial and non-entrepreneurial organizations can employ either a prospector or a defender strategy (Dess, Lumpkin and Covin, 1997; Zahra and Covin, 1993; Zahra and Pearce, 1990).

Structure

Organizational structure results from an organizing process in which the company's resources are allocated and deployed to achieve strategic objectives (Mintzberg, 1985). In essence, organizational structure refers to the way in which the various parts of an organization are arranged to achieve consistency and coherence. In our study, we used the concepts of organic and mechanistic structure developed by Burns and Stalker (1961) in defining organization structure.

Organizational performance

Organizational performance has been described as the achievement of a firm with respect to some criterion or criteria, and is a complex and multidimensional phenomenon (Kanter and Binkerhoff, 1981). Venkataraman and Ramanujam (1986) developed a conceptual model of organizational performance that included the constructs of financial performance, operational performance and organizational performance. Later Hart and Banbury (1994) developed

operational definitions for Venkataraman and Ramanujam's (1986) three constructs. Jennings and Young (1990) state that the performance of an organization is closely linked to the goals and objectives that the organization wants to achieve and is a 'socially constructed reality' that exists in people's minds. Some researchers argue that multiple measures of performance should be utilized, while others assert that a single measure will suffice (Hirsch, 1975; Lenz, 1980). Also, Jennings and Seaman (1994) noted that generally it was the researcher who selected the particular performance measure being investigated. However, it may be more appropriate to use performance measures that are utilized by managers in the organizations being studied, because such measures tend to reflect specific organizational objectives.

Entrepreneurial organizations (EOs)

Zahra, Jennings and Kuratko (1999) report that in defining an EO, researchers tend to use one of the following three instruments: Kuratko, Montagno and Hornsby's (1990) assessment of EO; Miller and Friesen's (1982) measure of EO; or Covin and Slevin's (1988) modified version of the Miller and Friesen (1982) instrument. Further, Zahra, Jennings and Kuratko (1999) state that the Miller and Friesen (1982) instrument has been the most widely used to measure EO. Thus, for this study we used Miller and Friesen's (1982) measure of EO and speculated that our research sample would include both entrepreneurial and non-entrepreneurial organizations.

Organizations included in this research study

Gatignon, Tushman, Smith and Anderson (2002) state that previous research involving the SSP paradigm has used a narrow focus involving the internal aspects of organizations. Gulati, Nohira and Zaheer (2000) call for strategy–structure alignment studies that create value beyond the boundaries of the organization. Accordingly, we elected to study electrical distribution firms that move goods and services from producers to customers to overcome major time, place and possession gaps that separate goods and services from those who use them. Many electrical distributors started as small businesses and have evolved into large businesses with multiple operations in different US cities, as well as expanding globally. Also, electrical distributors can be either family-owned or part of major international conglomerates. Winer (2007) reports that distribution channels are dynamic in that those organizations within the distribution channel must adapt to changing environments, and that innovation in distribution can create new marketing opportunities.

Hypotheses

Strategy and structure arrangement hypotheses

Using the work of Kast and Rosenzweig (1973) and Dunn (1971), Chakravarthy (1982) stated that organizations used different strategies to match their structural arrangements, and argued that organizations with a prospector strategy would adopt an organic structure, while organizations with a defender strategy would adopt a mechanistic structure. Jennings and Seaman (1994) found support for Chakravarthy's (1982) conceptual argument.

We present the following research hypotheses based upon Chakravarthy's (1982) conceptual argument together with the empirical findings of Jennings and Seaman (1994):

> H1a: Entrepreneurial electrical distributors with a prospector strategy will have an organic structure.

> H1b: Entrepreneurial electrical distributors with a defender strategy will have a mechanistic structure.

> H1c: Non-entrepreneurial electrical distributors with a prospector strategy will have an organic structure.

> H1d: Non-entrepreneurial electrical distributors with a defender strategy will have a mechanistic structure.

Performance difference hypotheses

For the present study, we surveyed industry executives to determine a performance measure that reflected a financial condition for electrical distribution firms. Based on the responses of those industry executives, gross margin return on investment (GMROI) was utilized in the present study. GMROI can be further divided into two ratios: earns and turns. The earns ratio measures profitability by using gross margin divided by net sales; the turns ratio reflects the amount of inventory used by the firm and is defined as net sales divided by inventory. The earns and turns ratios were used for a five-year period, 1998 through 2002. Many industry analysts (Bates, 2007) argue that, when used together, the earns and turns ratios provide a measure of the 'real health' of an electrical distributor.

Siggelkow (2002) found that misperceptions about the impact of strategy–structure alignments on innovative initiatives could affect the overall performance of an organization. Chakravarthy (1982) also posited that organizations having specific strategy–structure arrangements would experience differences in performance because of the notion of inertia. For

example, investments in technologies and human skills are costly and may not always be made (Homburg, Krohmer and Workman, 1999; Hart, 1992; McKelvey and Aldrich, 1983). The availability of organizational slack provides resources for adaptation, innovation and improved decision making (Singh, 1986; Barney, 1986), while reduced slack, or a scarcity of resources, induces a managerial paralysis causing rigidity, which propels the organization to a decreased performance (Varadarajan, Jayachandran and White, 2001; Priem, Rasheed and Kotulic, 1995; Bozeman and Slusher, 1979). Jennings and Seaman (1994) reported performance differences among organizations having a prospector strategy–organic structure and also among organizations with a defender strategy–mechanistic structure.

We anticipate, based on the findings of Siggelkow (2002), Chakravarthy's (1982) conceptualization, the empirical findings of Jennings and Seaman (1994) and our discussion of organizational inertia, that performance differences will occur among entrepreneurial and non-entrepreneurial organizations having similar strategy–structure arrangements, as follows:

> H2a: Performance differences as measured by the earns and turns ratios will occur among entrepreneurial electrical distributors that have a prospector strategy–organic structure.

> H2b: Performance differences as measured by the earns and turns ratios will occur among entrepreneurial electrical distributors that have a defender strategy–mechanistic structure.

> H2c: Performance differences as measured by the earns and turns ratios will occur among non-entrepreneurial electrical distributors that have a prospector strategy–organic structure.

> H2d: Performance differences as measured by the earns and turns ratios will occur among non-entrepreneurial electrical distributors that have a defender strategy–mechanistic structure.

Strategy–structure alignment hypotheses

An overriding premise from the literature on strategy–structure alignment is that certain moderating factors may affect an optimal strategy–structure alignment and that organizations with a certain strategy–structure configuration may have a higher or lower performance than other organizations with similar strategy–structure configurations (Dess, Lumpkin and Covin, 1997; Dess, Rasheed, McLaughlin and Priem, 1995; Lengnick-Hall, 1992).

Thus, in considering the moderating effects of an optimal strategy–structure alignment, we anticipate the following hypotheses:

> H3a: Entrepreneurial electrical distributors that have the best prospector strategy–organic structure match will have the highest performance as measured by the earns and turns ratios, compared with other entrepreneurial prospector strategy–organic structure electrical distributors.

> H3b: Entrepreneurial electrical distributors that have the best defender strategy–mechanistic structure match will have the highest performance as measured by the earns and turns ratios, compared with other entrepreneurial defender strategy–mechanistic structure electrical distributors.

> H3c: Non-entrepreneurial electrical distributors that have the best prospector strategy–organic structure match will have the highest performance as measured by the earns and turns ratios, compared with other non-entrepreneurial prospector strategy–organic structure electrical distributors.

> H3d: Non-entrepreneurial electrical distributors that have the best defender strategy–mechanistic structure match will have the highest performance as measured by the earns and turns ratios, compared with other non-entrepreneurial defender strategy–mechanistic structure electrical distributors.

The optimal-alignment hypothesis

Tsoukas and Knudsen (2006) report that the SSP paradigm argues that organizations with an optimal strategy–structure alignment will have the highest performance. Our final hypothesis pertains to the issue of the optimal strategy–structure alignment and is speculative on our part:

> H4: Equal levels of performance as measured by the earns and turns ratios will occur among (a) entrepreneurial electrical distributors with a prospector strategy–organic structure having the best strategy–structure alignment, (b) entrepreneurial electrical distributors with a defender strategy–mechanistic structure having the best strategy–structure alignment, (c) non-entrepreneurial electrical distributors with a prospector strategy–organic structure having the best strategy–structure alignment, and (d) non-entrepreneurial electrical distributors with a defender strategy–mechanistic structure having the best strategy–structure alignment.

Data and methods

Sample

We examined electrical distribution firms between 1998 and 2002. In 2002, total US sales of electrical distribution firms were US$70 billion and the total population of US electrical distribution firms consisted of 1,500 firms. Sales of these firms ranged from US$0.75 million to US$9 billion (National Association of Electrical Distributors [NAED], 2002). NAED provided us with a mailing list of its 1,500 members by company name. We randomly selected 460 firms from that list and then we determined the top two managers and their physical addresses for the preceding 460 firms. The firms selected for this study had 2002 sales ranging from US$5 million to US$9 billion and: (1) were both privately and publicly owned; (2) had been in existence for at least 10 years; and (3) were located throughout the USA.

Measuring entrepreneurial organization

Miller and Friesen's (1982) index was used to measure EO. As discussed in an earlier section, such an index has been widely used and validated. The seven items (presented in Appendix 1) were rewritten to make them applicable to the electrical distribution channel. While Miller and Friesen's original instrument solicited responses using a 7-point Likert scale, our scale was reduced to a 5-point rating category for questionnaire design consistency and to facilitate participant responses. Aiken (1987) studied the effects on ratings using different Likert scales and found that 2-category scales were significantly different from 3-, 4-, 5-, 6- or 7-category scales, but that no significant difference existed among 3, 4, 5, 6 and 7-point scales. Aiken (1987, p 54) concludes that 'using a small number of categories (but greater than two) is as effective as a larger number of categories'. Thus our use of a 5-point Likert scale to measure corporate entrepreneurship is no different from Miller and Friesen's (1982) 7-point Likert scale.

Measuring strategy

Snow and Hrebiniak's (1980) procedure describing the strategy types of the Miles and Snow (1978) typology were used to measure strategy. As described in Appendix 2, study participants were asked to check the type best describing the strategic behaviour of their firm. This paragraph approach has been commonly used and extensively validated (Rajagopalan, 1996; James and Hatten, 1995) and is considered more convenient than the lengthy multi-item strategy typologies used by Hambrick (1981). Also, several studies have validated the ability of managers to self-diagnose their firms'

Table 1. Hage's (1965) organizational 'means' variables related to organic and mechanistic structures.

Variables	Structural value	
	Organic	Mechanistic
Formalization		
1. Codified jobs	Low	High
2. Variations within jobs	Low	High
Stratification		
3. Status among jobs	Low	High
4. Mobility barriers between low and high jobs	Low	High
Complexity		
5. Number of specialities	High	Low
6. Required level of high training	High	Low
Centralization		
7. Number of decision-making jobs	High	Low
8. Number of areas where decisions are made by decision makers	High	Low

Source: Adapted from Hage (1965).

strategic orientation using the Miles and Snow (1978) strategy typology (Slater and Narver, 1993; Shortell and Zajac, 1990; Conant, Mokwa and Varadarajan, 1990). Further, an argument has been made that practising managers have the cognitive ability to identify the type of strategy employed by their firms and that researchers should utilize this knowledge (Dean and Sharfman, 1996; Huber and Power, 1985; Downey and Ireland, 1979). Several researchers state that the most appropriate and relevant way in which key issues pertaining to types of strategies employed by firms and the selection of competitive positions can be assessed is by asking the managers involved (Geletkanycz and Black, 2001; Morgan and Piercy, 1998; Day and Nedungadi, 1994).

Measuring organic and mechanistic structure

In this study, we used Hage's (1965) instrument to measure organic and mechanistic structures. That instrument, described in Appendix 3, includes two items for each of four variables (formalization, stratification, complexity and centralization) and was rewritten to conform to the electrical distribution channel. Table 1 illustrates how Hage's (1965) four structural variables relate to organic and mechanistic structures.

Study participants were asked to indicate the extent to which the structural variables described their electrical distributorships. Responses were measured using a 5-point Likert scale.

Measuring performance

The two performance ratios (earns and turns) depicted in Appendix 4 were reported by study participants for the

years 1998–2002. During that time period, the external environment facing electrical distributors changed from a munificent environment to a hostile environment. Because many of the firms included in our study are privately owned, our performance measures are subjective. In some instances, retrospective interviews with top managers are the only possible source of performance data. Although such interviews may provide inaccurate and biased data, Huber and Power (1985) defend this methodology. While an argument persists that dysfunctional aspects of research may occur with respect to utilizing subjective measures of organizational performance (Scott, 1992), Downey and Ireland (1979) provide a rationale for the use of subjective data.

Data collection

A pilot-tested questionnaire together with a covering letter was sent to the top two senior managers of each electrical distributor in the sample. Each manager was requested to respond to questions pertaining to the entrepreneurial style of his or her firm (Appendix 1) and the firm's particular strategy and structure (Appendixes 2 and 3). Only the most senior manager was asked to respond to the performance question (Appendix 4). Senior managers of non-responding firms were contacted by e-mail and these managers cited lack of time as the major reason for not responding.

Data analysis

The two top managers from 166 electrical distributors provided responses that identified the entrepreneurial style, strategy and structure of their respective firms, while the most senior managers from each of the 166 firms provided performance data. This constitutes a response rate of 36.1%. However, 148 responses (a response rate of 32.2%) were used for data analysis. Such a usable response rate of 32.2% is considered to be acceptable for field research for the study of EO (Zahra and Covin, 1993).

A major objective of our study was to investigate those electrical distributors having either a prospector or defender strategy. Thus, those responding firms that reported employing either an analyser or reactor strategy were excluded from the study. Accordingly, the 18 electrical distributors (166 minus 148) whose responses were received but were not used had reported employing either an analyser or reactor strategy. In fact, 16 of those firms reported an analyser strategy and two indicated a reactor strategy. Also, replies from 11 of the 18 unusable responses were from electrical distributors reporting that their firm classification was entrepreneurial; and the remaining seven unusable responses indicated a non-entrepreneurial firm classification.

Table 2. Study respondents.

	Number	Percentage	
Sample size	460	100.00	
Respondents	166	36.10	
Usable responses	148	32.20	
Organizational classification	**Prospector strategy organic structure**	**Defender strategy mechanistic structure**	**Total**
Entrepreneurial	33	39	72
Non-entrepreneurial	29	47	76
Total	62	86	148

A frequency table was developed to identify those 148 responding electrical distributors as being either entrepreneurial or non-entrepreneurial. Seventy-two firms reported being entrepreneurial, while 76 firms indicated a non-entrepreneurial orientation. Thirty-three of the responding 72 entrepreneurial electrical distributors reported the use of a prospector strategy, while the remaining 39 indicated a defender strategy. Twenty-nine of the responding 76 non-entrepreneurial electrical distributors reported employing a prospector strategy, while the remaining 47 reported using a defender strategy. Table 2 details the distribution of responding electrical distributors by both organizational classification (entrepreneurial or non-entrepreneurial) and by type of strategy (prospector or defender) and structure (organic or mechanistic) employed.

Effects of size

Certain researchers (Robinson, 1982; Lindsay and Rue, 1980) have argued that small firms may exhibit different characteristics from large firms, and should be considered as a separate class in data analysis. As organizations increase in size, they emphasize predictability and formalized roles, which cause organizational behaviour to become rigid, predictable and inflexible (Quinn and Cameron, 1983; Downs, 1967). Since differences in size can influence a firm's performance as well as other organizational variables, we separated the responding electrical distributors into four categories and conducted a covariance analysis (ANCOVA) to control for organizational size for each of the four categories. These four categories were:

Category 1 – entrepreneurial firms having a prospector strategy–organic structure;

Category 2 – entrepreneurial firms having a defender strategy–mechanistic structure;

Category 3 – non-entrepreneurial firms having a prospector strategy–organic structure;

Category 4 – non-entrepreneurial firms having a defender strategy–mechanistic structure.

F-ratios for differences in performance means (earns and turns ratios) for the above four categories were 47.83 ($p < 0.0001$), 43.78 ($p < 0.0001$), 222.97 ($p < 0.0001$) and 273.55 ($p < 0.0001$) respectively. Thus, these test statistics suggest that performance mean differences were not simply an artefact of electrical distributor size.

Non-response bias

An analysis of non-response bias (Armstrong and Overton, 1977) was conducted. Such a procedure requires that responses should be numbered sequentially in the order in which they are received. Next, mean scores of the first quartile (which are assumed to be the most motivated) are compared with those of the last quartile (assumed to be the most similar to non-respondents). No significant difference in means ($p < 0.05$) was revealed, indicating that there is no evidence of response bias.

Results

Entrepreneurial type, strategy and structure characteristics

As mentioned earlier, respondents were asked to identify their firms as being either entrepreneurial or non-entrepreneurial using the questionnaire described in Appendix 1. Cronbach's (1951) coefficient alpha for our corporate entrepreneurship measure (the seven scale items in Appendix 1) was 0.79 – exceeding the value of 0.70, which would indicate construct validity (Van de Ven and Ferry, 1980; Nunnally, 1978). Scores on the seven items were averaged to produce an overall EO index. A high score on the index indicates entrepreneurial activity and a low score indicates little or none. The 72 entrepreneurial firms had an index of 4.25, while the 76 non-entrepreneurial firms had an index of 1.56. Further, the index scores of the entrepreneurial and non-entrepreneurial firms were significantly different ($t = 42.93$, $p < 0.0001$). The coefficient alpha for the structural variables of formalization, stratification, complexity and centralization were 0.89, 0.87, 0.81 and 0.84 respectively. Inter-rater reliabilities for the responses of the two top managers were: (1) a range of 0.82 to 0.90 for the eight structural means, and (2) 0.88 for organizational strategy. Mean scores, standard deviations, inter-rater reliabilities and alpha coefficients for organizational classification, strategy and structure are presented in Tables 3 and 4.

The eight structural variables loaded on one factor using a factor analysis with an orthogonal varimax rotation and were highly correlated. Table 5 illustrates the Pearson correlation coefficients for these items.

Hypotheses tested

As indicated in Table 6, all 13 hypotheses were supported.

Hypotheses 1a and 1b. We predicted in the first two hypotheses that entrepreneurial electrical distributors with a prospector strategy would have an organic structure and that entrepreneurial electrical distributors with a defender strategy would have a mechanistic structure. Statistical analyses (chi-square value of 148.37, $p < 0.0001$ and a t-test; $t = 4.11$, $p < 0.0001$) provide support for both hypotheses.

Hypotheses 1c and 1d. We predicted in these two hypotheses that non-entrepreneurial electrical distributors with a prospector strategy would have an organic structure and that non-entrepreneurial electrical distributors with a defender strategy would have a mechanistic structure. Both hypotheses were supported (chi-square value of 135.24, $p < 0.0001$ and a t-test; $t = 3.89$, $p < 0.0001$).

Hypotheses 2a, 2b, 2c and 2d. In these four hypotheses, we speculated that performance differences would occur among (1) entrepreneurial electrical distributors with a prospector strategy–organic structure, (2) entrepreneurial electrical distributors with a defender strategy–mechanistic structure, (3) non-entrepreneurial electrical distributors with a prospector strategy–organic structure, and (4) non-entrepreneurial electrical distributors with a defender strategy–mechanistic structure. Our approach in investigating hypotheses 2a, 2b, 2c and 2d was to cluster the responding electrical distributors by using the four categories previously described. In so doing, we used a cluster technique described by Kerlinger (1973) and Osgood, Suci and Tannenbaum (1957). Figures 1 and 2 depict three clusters that were generated from each of the four categories.

As illustrated in Figure 1, the previously confirmed 33 entrepreneurial electrical distributors having a prospector strategy–organic structure were separated into three clusters of 9, 11 and 13 electrical distributors respectively. The 39 previously confirmed entrepreneurial electrical distributors having a defender strategy–mechanistic structure were separated into clusters of 13, 11 and 15 electrical distributors respectively.

Also, as illustrated in Figure 2, the previously confirmed 29 non-entrepreneurial electrical distributors having a prospector strategy–organic structure were separated into three clusters of 9, 11 and 9 electrical distributors respectively. The 47 previously confirmed

Table 3. Means,[a] standard deviations and reliabilities for entrepreneurial (EO) organizational type, strategy and structure characteristics.

Structural variables	EO type and prospector strategy		EO type and defender strategy		Inter-rater reliability	Alpha coefficient
	Means	SD	Means	SD		
	N = 33		N = 39			
Formalization						0.89
1. Codified jobs	1.82	0.68	3.83	0.64	0.90	
2. Variation within jobs	1.89	0.73	3.91	0.75	0.86	
Stratification						0.87
3. Status among jobs	1.78	0.64	3.64	0.71	0.88	
4. Mobility barriers between low and high jobs	1.92	0.62	3.51	0.68	0.85	
Complexity						0.81
5. Number of specialities	2.88	0.92	1.94	0.81	0.80	
6. Required level of training	3.01	0.97	1.86	0.92	0.82	
Centralization						0.84
7. Number of decision-making jobs	3.06	1.01	2.01	0.95	0.82	
8. Number of areas where decisions are made by decision makers	2.97	0.99	1.87	0.83	0.85	

[a]1 = never; 5 = always. Table 2 details how the structural variables are related to both organic and mechanistic structure, while Appendix 3 describes the research questionnaire.

Table 4. Means,[a] standard deviations, and reliabilities for non-entrepreneurial organizational type (NEO), strategy and structure characteristics.

Structural variables	CO type and prospector strategy		CO type and defender strategy		Inter-rater reliability	Alpha coefficient
	Means	SD	Means	SD		
	N = 29		N = 47			
Formalization						0.92
1. Codified jobs	3.14	0.71	3.83	0.79	0.88	
2. Variation within jobs	3.28	0.73	3.87	0.82	0.86	
Stratification						0.88
3. Status among jobs	3.34	0.69	3.79	0.86	0.76	
4. Mobility barriers between low and high jobs	3.07	0.75	3.98	0.77	0.74	
Complexity						0.74
5. Number of specialities	2.01	1.13	2.45	0.72	0.78	
6. Required level of training	2.07	1.28	2.32	0.87	0.84	
Centralization						0.85
7. Number of decision-making jobs	1.86	1.37	2.26	0.92	0.87	
8. Number of areas where decisions are made by decision makers	2.12	1.01	2.18	0.81	0.79	

[a]1 = never; 5 = always. Table 2 details how the structural variables are related to both organic and mechanistic structure, while Appendix 3 describes the research questionnaire.

Table 5. Pearson correlation coefficients[a] for structural variables.

|	V1	V2	V3	V4	V5	V6	V7	V8
V1 – Codified jobs	1.000							
V2 – Variation within jobs	0.774	1.000						
V3 – Status among jobs	0.785	0.825	1.000					
V4 – Mobility barriers among low and high jobs	0.763	0.748	0.782	1.000				
V5 – Number of specialities	−0.739	−0.772	−0.822	0.792	1.000			
V6 – Training	−0.744	−0.753	−0.797	−0.748	0.876	1.000		
V7 – Decision-making jobs	−0.786	−0.741	−0.811	−0.821	0.763	0.692	1.000	
V8 – Decision-making areas	−0.752	−0.778	−0.782	−0.811	0.792	0.705	0.744	1.000

[a]All correlation coefficients significant at 0.0001 level.

Table 6. Hypotheses of investigation and levels of support.

Hypo-thesis	Summary	Indication of support	F value
1a	Entrepreneurial electrical distributors with a prospector strategy will have an organic structure	Supported	< 0.0001
1b	Entrepreneurial electrical distributors with a defender strategy will have a mechanistic structure	Supported	< 0.0001
1c	Conservative electrical distributors with a prospector strategy will have an organic structure	Supported	< 0.0001
1d	Conservative electrical distributors with a defender strategy will have a mechanistic structure	Supported	< 0.0001
2a	Performance differences will occur among entrepreneurial electrical distributors having a prospector strategy–organic structure	Supported	< 0.0001
2b	Performance differences will occur among entrepreneurial electrical distributors having a defender strategy–mechanistic structure	Supported	< 0.0001
2c	Performance differences will occur among non-entrepreneurial electrical distributors having a prospector strategy–organic structure	Supported	< 0.0001
2d	Performance differences will occur among non-entrepreneurial electrical distributors having a defender strategy–mechanistic structure	Supported	< 0.0001
3a	Entrepreneurial electrical distributors with the best prospector strategy–organic structure match will have the best performance when compared with other entrepreneurial electrical distributors having a prospector strategy–organic structure	Supported	0.05
3b	Entrepreneurial electrical distributors with the best defender strategy–mechanistic structure match will have the best performance when compared with other entrepreneurial electrical distributors having a defender strategy–mechanistic structure	Supported	0.05
3c	Conservative electrical distributors with the best prospector strategy–organic structure match will have the best performance when compared with other conservative electrical distributors having a prospector strategy–organic structure	Supported	0.05
3d	Conservative electrical distributors with the best defender strategy–mechanistic structure match will have the best performance when compared with other conservative electrical distributors having a defender strategy–mechanistic structure	Supported	0.05
4	Equal performance will occur among (a) entrepreneurial electrical distributors having the best prospector strategy–organic structure match, (b) entrepreneurial electrical distributors having the best defender strategy–mechanistic structure match, (c) conservative electrical distributors having the best prospector strategy–organic structure match, and (d) conservative electrical distributors having the best defender strategy–mechanistic structure match	Supported for performance measures of turns, earns, and earns times turns	'earns': $p = 0.859$; 'turns': $p = 0.884$; 'earns × turns': $p = 0.97$
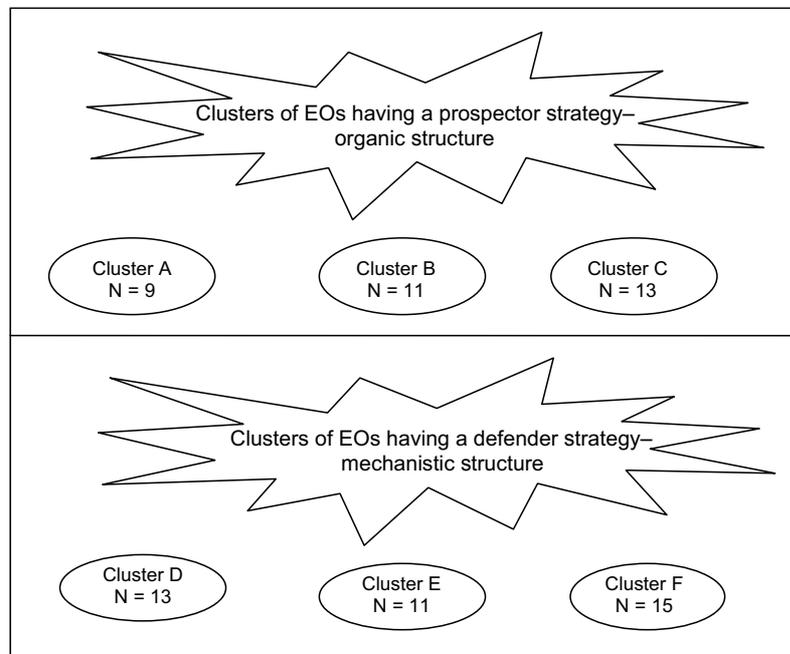
Figure 1. Clusters of entrepreneurial (EO) electrical distributors.
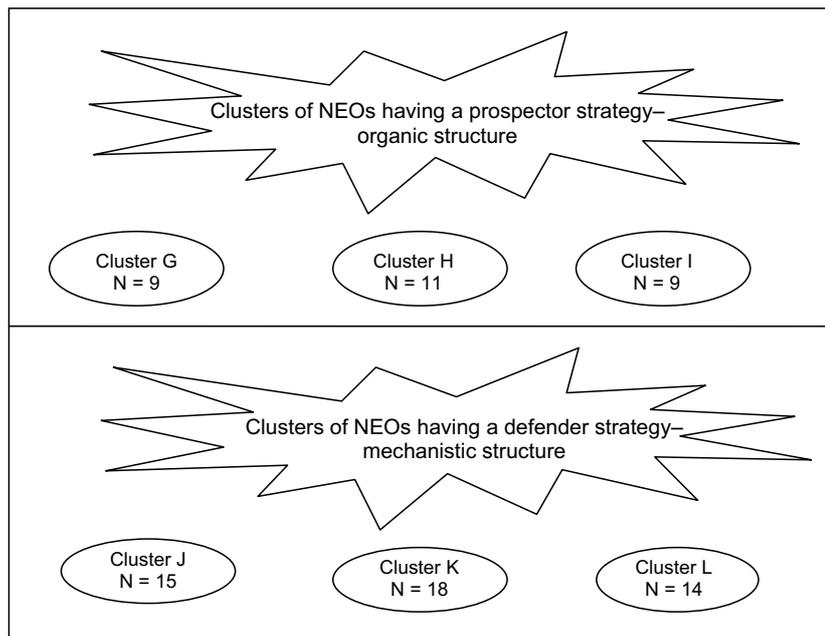
Figure 2. Clusters of non-entrepreneurial (NEO) electrical distributors.

non-entrepreneurial electrical distributors having a defender strategy–mechanistic structure were separated into clusters of 15, 18 and 14 electrical distributors respectively.

Statistical means and standard deviations of the structural variables for each cluster, together with performance data, are described in Table 7 for the responding entrepreneurial electrical distributors and in Table 8 for the responding non-entrepreneurial electrical distributors. The reader will note that Tables 7 and 8 contain the three performance measures of earns, turns, and earns times turns. Survey respondents reported their earns and turns ratios for each of the five years 1998 through 2002 and we then multiplied the respective earns and turns to generate an earns times turns measure for each of the five years.

ANOVA tests indicated that the average structure means of the three clusters in each of the four categories were significantly different ($F = 74.542$, $p < 0.0001$ for entrepreneurial electrical distributors with a prospector strategy–organic structure; $F = 79.387$, $p < 0.0001$ for entrepreneurial electrical distributors with a defender strategy–mechanistic structure; $F = 95.187$, $p < 0.0001$ for non-entrepreneurial electrical distributors with a prospector strategy–organic structure; $F = 153.361$, $p < 0.0001$ for non-entrepreneurial electrical distributors with a defender strategy–mechanistic structure).

Because the three performance measures of earns, turns, and earns times turns were not highly correlated, they were treated independently for computational purposes. An ANOVA test indicated that performance was significantly different for the strategy–structure clusters in each of the four categories. Thus hypotheses 2a, 2b, 2c and 2d are supported. The ANOVA result for the performance measures of earns, turns, and earns times turns for entrepreneurial electrical distributors with a prospector strategy–organic structure are: ($F = 7.332$, $p = 0.003$; $F = 18.134$, $p < 0.0001$; $F = 29.203$, $p < 0.0001$) respectively. The ANOVA result for the performance measures of earns, turns, and earns times turns for entrepreneurial electrical distributors with a defender strategy–mechanistic structure are: ($F = 6.418$, $p = 0.004$; $F = 27.698$, $p < 0.0001$; $F = 40.727$, $p < 0.0001$) respectively.

The ANOVA result for the performance measures of earns, turns, and earns times turns for non-entrepreneurial electrical distributors with a prospector strategy–organic structure are: ($F = 6.527$, $p = 0.005$; $F = 2.995$, $p < 0.0001$; $F = 61.294$, $p < 0.0001$) respectively. The ANOVA result for the performance measures of earns, turns, and earns times turns for non-entrepreneurial electrical distributors with a defender strategy–mechanistic structure are: ($F = 8.797$, $p = 0.001$; $F = 39.809$, $p < 0.0001$; $F = 63.531$, $p < 0.0001$) respectively.

Table 7. Means,[a] standard deviations and performance data[b] for cluster groups of entrepreneurial electrical distributors.

Entrepreneurial type: prospector strategy

| | Organic structure | | Performance | | Earns times |
	Mean	SD	Earns	Turns	turns
Cluster A (N = 9)	2.90	0.49	27.07	3.25	87.12
Cluster B (N = 11)	1.47	0.14	33.84	4.08	139.29
Cluster C (N = 13)	2.81	0.24	28.89	3.05	87.59

Entrepreneurial type: defender strategy

| | Mechanistic structure | | Performance | | Earns times |
	Mean	SD	Earns	Turns	turns
Cluster D (N = 13)	3.88	0.30	37.37	4.05	136.06
Cluster E (N = 11)	3.21	0.22	28.22	3.19	89.10
Cluster F (N = 15)	3.09	0.14	29.32	3.04	88.66

[a] Because all eight structural variables were highly correlated, an average value was used.
[b] All performance measures are averages for the years 1998–2002.
The earns value is expressed as a percentage, while the turns value is expressed as a whole number.

Table 8. Means,[a] standard deviations and performance data[b] for cluster groups of non-entrepreneurial electrical distributors.

Non-entrepreneurial type: prospector strategy

| | Organic structure | | Performance | | Earns times |
	Mean	SD	Earns	Turns	turns
Cluster G (N = 9)	2.89	0.42	27.33	3.81	105.12
Cluster H (N = 11)	2.54	0.18	28.76	3.14	89.85
Cluster I (N = 9)	1.56	0.21	32.80	4.05	133.66

Non-entrepreneurial: defender strategy

| | Mechanistic structure | | Performance | | Earns times |
	Mean	SD	Earns	Turns	turns
Cluster J (N = 15)	4.24	0.19	34.12	4.09	140.58
Cluster K (N = 18)	3.21	0.25	29.70	3.04	90.17
Cluster L (N = 14)	3.14	0.17	29.27	3.14	91.20

[a] Because all eight structural variables were highly correlated, an average value was used.
[b] All performance measures are averages for the years 1998–2002.
The earns value is expressed as a percentage while the turns value is expressed as a whole number.

Hypotheses 3a, 3b, 3c and 3d. To investigate the strategy–structure–performance relationship, we used the work of Hage (1965) in which he argued that his (Hage's) structural variables, described in Table 1, provided a continuum for measuring the degree of an organization's organic or mechanistic structure. For example, organizations with a low structural mean are more organic, while those with a high structural mean are more mechanistic. Using Hage's (1965) argument, for those entrepreneurial electrical distributors depicted in Table 7, Cluster B would have the best strategy–structure alignment in their category because they had the best type of organic structure (their corresponding structural means were lower than those of Clusters A and C). Similarly, from Table 7, Cluster D would have the best strategy–structure alignment in their category because they had the best type of mechanistic structure (their corresponding structural means were higher than those of Clusters E and F). Continuing with Hage's (1965) argument, for those non-entrepreneurial electrical distributors depicted in Table 8, Cluster I would have the best strategy–structure alignment in their category because they had the best type of organic structure (their corresponding structural means were lower than those of Clusters G and H). Similarly, from Table 8, Cluster J would have the best strategy–structure alignment in their category because they had the best type of mechanistic structure (their corresponding structural means were higher than those of Clusters K and L).

For Hypotheses 3a, 3b, 3c and 3d to be supported, those clusters in each category with the best strategy–structure alignment would have a higher performance than the other clusters in the respective category. Tables

Table 9. ANOVA results of performance measures by cluster of entrepreneurial electrical distributors.

(a) Prospector strategy: organic structure

Performance measure	F	Scheffe (0.05) multiple comparison
Earns	7.332*	Cluster B
Turns	18.134**	Cluster B
Earns times turns	29.203**	Cluster B

*$P < 0.003$; **$P < 0.0001$. Cluster B significantly differs from clusters A and C for performance of earns, turns and earns times turns at the 0.05 significance level.

(b) Defender strategy: mechanistic structure

Performance measure	F	Scheffe (0.05) multiple comparison
Earns	6.418*	Cluster D
Turns	27.698**	Cluster D
Earns times turns	40.727**	Cluster D

*$P < 0.004$; **$P < 0.0001$. Cluster D significantly differs from clusters E and F for performance of earns, turns and earns times turns at the 0.05 significance level.

Table 10. ANOVA results of performance measures by clusters of conservative electrical distributors.

(a) Prospector strategy: organic structure

Performance measure	F	Scheffe (0.05) multiple comparison
Earns	6.527*	Cluster I
Turns	2.995**	Cluster I
Earns times turns	61.294**	Cluster I

*$P < 0.005$; **$P < 0.0001$. Cluster I significantly differs from clusters G and H for performance measures of earns, turns and earns times turns at the 0.05 significance level.

(b) Defender strategy: mechanistic structure

Performance measure	F	Scheffe (0.05) multiple comparison
Earns	8.797*	Cluster J
Turns	39.809**	Cluster J
Earns times turns	63.531**	Cluster J

*$P < 0.001$; **$P < 0.0001$. Cluster J significantly different from clusters K and L for performance measures of earns, turns and earns times turns at the 0.05 significance level.
Source: Von Bertalanfy (1960).

9 and 10 present an ANOVA analysis of performance measures by the clusters in each category, together with the results of Scheffe's multiple range test at the 0.05 significance level for performance differences.

For those electrical distributors in Category 1, Cluster B was significantly different from Clusters A and C for the performance measures of earns, turns, and earns times turns – which provides support for Hypothesis 3a.
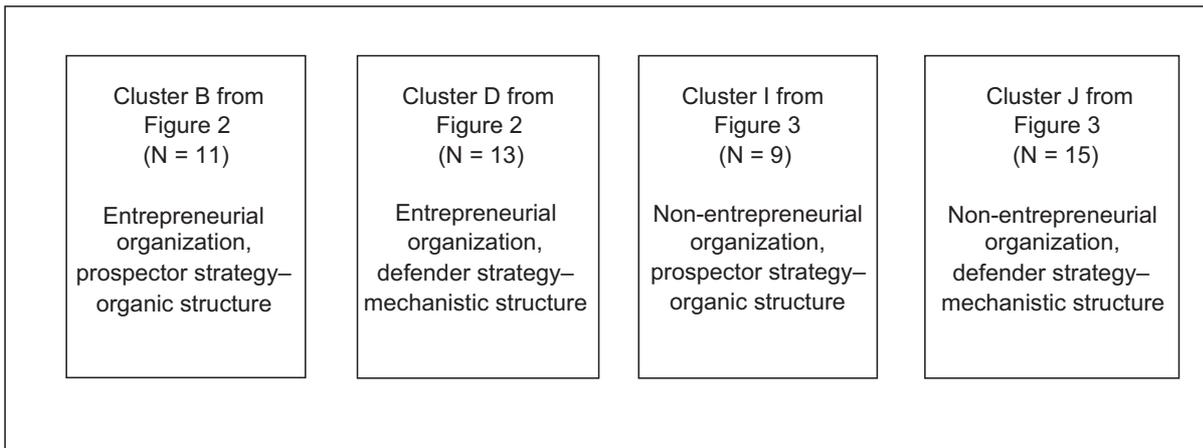
In Category 2, the performance measures of earns, turns, and earns times turns for Cluster D were significantly different from Clusters E and F – which provides support for Hypothesis 3b. In Category 3, the performance measures of earns, turns, and earns times turns for Cluster I were significantly different from Clusters G and H – which provides support for Hypothesis 3c. In Category 4, the performance measures of earns, turns, and earns times turns for Cluster J were significantly different from Clusters K and L – which provides support for Hypothesis 3d.

Hypothesis 4. The final hypothesis stated that electrical distributors in each of the four categories with the best strategy–structure alignment would have equal performances. For Hypothesis 4 to be supported, electrical distributors in Clusters B, D, I and J would have no significant difference in their performance. Figure 3 illustrates these four clusters.

An ANOVA analysis of the three performance measures for the four clusters depicted in Figure 3 indicated that no significant differences existed for the performance measures of earns, turns, and earns times turns ($F = 0.217$, $p = 0.859$; $F = 0.079$, $p = 0.884$; $F = 0.253$, $p = 0.971$) respectively. Thus, Hypothesis 4 is supported.

Discussion

As stated earlier, research studies that focus on comparing the performance differences between entrepreneurial and non-entrepreneurial organizations are almost nonexistent. However, such research would provide valuable insights regarding the performance of entrepreneurial organizations when compared with that of non-entrepreneurial organizations. The present study indicates that both entrepreneurial and non-entrepreneurial electrical distributors with an optimal strategy–structure alignment tend to have a higher performance than do those entrepreneurial and non-entrepreneurial firms without an optimal strategy–structure alignment. Our findings suggest that a higher performance is determined by an organization's strategy–structure alignment and not by whether the organization is either entrepreneurial or non-entrepreneurial. This study also extends the SSP paradigm by investigating both large and small firms in a distribution channel. Tsoukas and Knudsen (2006) report that most SSP paradigm studies conducted in the 1970s and 80s tended to focus on small firms. Also, our findings support arguments from strategic management researchers regarding strategy, structure and performance. One argument is that managers cope with

| Cluster B from Figure 2 (N = 11) Entrepreneurial organization, prospector strategy–organic structure | Cluster D from Figure 2 (N = 13) Entrepreneurial organization, defender strategy–mechanistic structure | Cluster I from Figure 3 (N = 9) Non-entrepreneurial organization, prospector strategy–organic structure | Cluster J from Figure 3 (N = 15) Non-entrepreneurial organization, defender strategy–mechanistic structure |

Figure 3. Clusters of electrical distributors with superior strategy–structure–performance.

changes in their organizations' external environment through the choice of an appropriate strategy and the design of a matching structure (Nadler, 2001; Miller, 1986; Ansoff, 1979). Our results indicate that the preceding argument of how managers cope with external changes has validity for those managers in entrepreneurial organizations.

Conclusions

The findings of this study indicate that: (a) entrepreneurial electrical distributors having the optimal prospector strategy–organic structure alignment, (b) entrepreneurial electrical distributors having the optimal defender strategy–mechanistic structure alignment, (c) non-entrepreneurial electrical distributors having the optimal prospector strategy–organic structure alignment and (d) non-entrepreneurial electrical distributors having the optimal defender strategy–mechanistic structure alignment all have equal performance. Our study indicates that the key for achieving high performance is to have an optimal strategy–structure alignment. This finding tends to provide answers to the SSP paradigm in that a feasible set of equally effective, internally consistent patterns of strategy and structure yields an optimal performance and there is no best single strategy or structure for a given industry environment.

The findings of this study also have important implications for practising managers. Non-entrepreneurial electrical distributors with an optimal strategy–structure alignment performed just as well as entrepreneurial electrical distributors with an optimal

strategy–structure alignment. This finding suggests that top managers, even in the face of a hostile environment, can defend an existing approach for competing, so long as their strategy–structure alignment is done consistently well. Further, these findings suggest that the conventional wisdom regarding the importance of 'transforming and restructuring', which pervades both popular and academic publications, may have certain exceptions. For example, while conventional wisdom seems to recommend the one best way for achieving high performance, our study indicates that a variety of approaches may be used to achieve high performance. Managers must minimize misfits between their strategy–structure alignments as they prepare their organizations to deal with organizational changes. In essence, managers may have to fine-tune the structure of their organizations in the face of environmental change.

Limitations

This study is preliminary in that it was conducted on a single grouping of firms – electrical distributors. While the present research represents an important step in comparing the performance differences between entrepreneurial and non-entrepreneurial organizations using the SSP paradigm, several areas for future research are suggested. For example, researchers might wish to examine the comparison of the SSP paradigm in entrepreneurial and non-entrepreneurial organizations in different industry settings. Another area for future research involves conducting longitudinal analyses of the evolution of strategies, structures and environments to establish just how the strategy–structure alignment

becomes optimal. Finally, McGrath and MacMillan (2000) argue that firms with organizational structures that are tightly controlled and mechanistic tend to be less innovative than those firms with loose, flexible, organic structures. Thus, another area for future research would be to investigate the extent to which the SSP paradigm affects the innovating activities of entrepreneurial and non-entrepreneurial organizations.

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Appendix 1

Research questionnaire used to measure EO

Responses ranged from 1 = strongly disagree, to 5 = strongly agree:

1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree; and 5 = strongly agree. Specific statements were:

(1) Our distributorship has made many dramatic changes in the mix of its products and services over the past five years.
(2) Our distributorship has emphasized making major innovations in its products and services over the past five years.
(3) Over the past five years, this distributorship has shown a strong proclivity for high-risk projects (with chances of very high return).
(4) Our distributorship has introduced many new products or services over the past five years.
(5) This distributorship has emphasized taking bold, wide-ranging actions in positioning itself and its products and services over the past five years.
(6) This distributorship has shown a strong commitment to research and development, technical leadership and innovation.
(7) This distributorship has followed strategies that allow it to exploit opportunities in its external environment.

Source: adapted from Miller, D., and Friesen, P. H. (1982), 'Innovation in conservative and entrepreneurial firms: two models of strategic momentum', *Strategic Management Journal*, Vol 3, pp 1–25.

Appendix 2

Research questionnaire used to measure organizational strategy

Listed below are four primary strategies utilized by electrical distribution firms. Each of these strategies is neither better nor worse than another. CIRCLE THE ONE that best describes your distributor's strategy:

(1) This type of distributorship attempts to locate and maintain a secure niche in a relatively stable product or service area. The distributorship tends to offer a more limited range of products than its competitors, and it tries to protect its domain by offering higher quality, superior service, lower prices and so forth. Often this type of firm is not at the forefront of developments in the industry – it tends to ignore industry changes that have no direct influence on current areas of operation and concentrates instead on doing the best job possible in a limited area.
(2) This type of distributorship typically operates within a broad product-market domain that undergoes periodic redefinition. The distributorship values being 'first in' in new product/service and market areas even if not all of these efforts prove to be highly profitable. The distributorship responds rapidly to early signals concerning areas of opportunity, and these responses often lead to a new round of competitive actions. However, this type of distributorship may not maintain market strength in all of the areas it enters.
(3) This type of distributorship attempts to maintain a stable, limited line of products/services, while at the same time moving out quickly to follow a carefully selected set of the more promising new developments in the industry. The distributorship is seldom 'first in' with new products/services. However, by carefully monitoring the actions of major competitors in areas compatible with its stable product/service-market base, the distributorship can frequently be 'second in' with more cost-efficient products/services.
(4) This type of distributorship does not appear to have a consistent product-market orientation. The distributorship is usually not as aggressive in maintaining established products/services and markets as some of its competitors, nor is it willing to take as many risks as other competitors. Rather, the distributorship responds in those areas where it is forced to, by environmental pressures.

Source: adapted from Snow, C. C., and Hrebiniak, L. G. (1980), 'Strategy, distinctive competence and organizational performance', *Administrative Science Quarterly*, Vol 25, pp 317–336.

Appendix 3

Research questionnaire used to measure organizational structure

Responses ranged from 1 = never, to 5 = always, as follows:

1 = never; 2 = rarely; 3 = occasionally; 4 = frequently and 5 = always. Specific statements were:

(1) Codified job descriptions are used by our distributorship.
(2) Ranges of variation are allowed within jobs in our distributorship.
(3) Differences exist in income and prestige among jobs in our distributorship.

(4) Rate of mobility between low- and high-ranking jobs is a barrier in achieving particular status levels.

(5) Specialists (lawyers, economists, information systems experts, CPAs, human relations experts and logisticians) are employed by our distributorship either to make or assist decisions.

(6) The level of training required for our lowest level manager and each succeeding level varies considerably.

(7) A proportion of jobs are used to participate in making decisions.

(8) Decision makers are involved in making decisions at most levels of our distributorship.

Source: adapted from Hage, J. (1965), 'An axiomatic theory of organization', *Administrative Science Quarterly*, Vol 10, pp 289–320.

Appendix 4

Performance measures

Performance measures are defined as follows:

(1) Earns ratio = gross margin divided by net sales.
(2) Turns ratio = net sales divided by inventory.

Response to performance measures:

Year	Earns ratio	Turns ratio
1998	_____	_____
1999	_____	_____
2000	_____	_____
2001	_____	_____
2002	_____	_____