

**THE RELATIONSHIP BETWEEN TWO TYPOLOGIES OF BUSINESS-
LEVEL STRATEGIES AND A FIRM'S FINANCIAL
PERFORMANCE, MAIN ORGANIZATIONAL
ACTIVITIES AND MANAGERS'
CHARACTERISTICS**

by

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ABSTRACT

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This study has been concerned with empirically testing the relationship between two typologies of business-level strategies with the financial performance of the sampled firms, the main activities executed in the organizations, and certain managerial characteristics.

Data were collected from 184 firms in five industrial sectors. The industries represented were: the capital goods industry, the metal mechanic industry, the foundry industry, the construction supply industry, and the chemical industry. The industries studied account for 16% of the state's GNP. Businesses in the sample ranged from micro to large-sized. Statistical tools consisted of chi-square analysis, Pearson's correlation analysis, t-test analysis, and multiple regression analysis.

Miles and Snow's (1978) and Porter's (1980) typologies were operationalized using brief descriptions of each category; the respondent was asked to select the description that most closely resembled his or her firm's strategy. The first authors proposed the following strategic orientations: defenders, prospectors, analyzers, and

reactors. Porter suggested three types of generic strategies: overall cost leadership, overall differentiation, and focus (used in conjunction with either cost leadership or differentiation). A firm is said to be "stuck in the middle" if it lacks a clear definition of its generic strategy.

Financial performance indicators were operationalized by using the respondent's perception of the firm's net profit margin and market share.

In order to operationalize the organizational activities, respondents were asked to rate on a three-point scale the importance of a set of ten activities commonly performed in a business.

The two managerial characteristics investigated in the research were: whether the person responsible for the firm's strategy is the business owner or a professional manager, and the level of formal education of the person responsible for the firm's strategy.

This study found that Miles and Snow's and Porter's typologies can be used to characterize the strategies followed by firms in industrial San Luis Potosí.

Descriptive statistics show that most firms in the sample are micro (25.5%) or small-sized firms (49.5%), that the business owner is usually the person responsible for the firm's strategy (72%), and that he or she holds at least one bachelor's degree (58%).

A number of associations were found between Miles and Snow's categories and the financial performance of the firm. For example, prospector firms appear to obtain higher net profit margins compared to the industry's average and higher market share over the last three years, while defenders appear to have experienced the opposite results.

Some organizational activities can be associated with Miles and Snow's categories. For example, prospectors are more likely to emphasize marketing and sales, market research, product research and development, and basic and applied engineering as opposed to defenders which do not emphasize the latter three.

Porter's strategies showed a number of significant associations with certain financial performance indicators. It appears that firms following a general differentiation strategy increased their market share compared to that market share attained under their previous strategy. Stuck-in-the-middle firms have reduced their market share and net profit margin compared to their previous strategy. Finally, firms following a focus differentiation strategy obtained a below-average net profit margin for the industry. Very few significant associations were found between Porter's strategies and the organizational activities of the firm.

No significant association was found between the strategy (Miles and Snow's and Porter's) implemented and whether the person responsible for the firm's strategy was the business owner or a professional manager, or between the strategy implemented and the level of formal education.

In conclusion, major findings indicate some associations between these typologies and the financial performance as well as certain organizational activities of the firm. This study provides managers with further understanding regarding possible strategies and academicians with support for additional research. Suggestions for further research include examining additional variables that may contribute to explaining the variance in financial performance, and the replication of this study in other states of the country in order to find similarities and differences.

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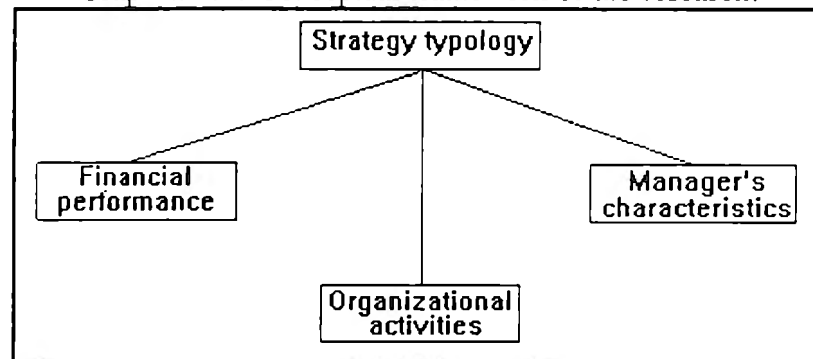
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I. INTRODUCTION.

I.A. Purpose of the research.

This research is aimed at finding the existence of significant relationships between a firm's competitive strategy, certain characteristics of the firm and general manager (see Graph I.A.1).

Graph I.A.1. Conceptual framework of the research.



The fundamental research question which follows is: To what extent are Miles and Snow's (1978) and Porter's (1980) categories of strategies applicable to the manufacturing sector of San Luis Potosí?

Miles and Snow's (1978) and Porter's (1980) typologies of strategy were selected for the study for two major reasons: first, because of their widespread use in the literature on strategy (Snow and Hambrick, 1980; Snow and Hrebiniak, 1980; Hambrick, 1983; Dess and Davis, 1984; Smith et al. 1986; Miller, 1988; Shortell and Zajac, 1990), and second, because both provide a methodological framework for studying the industrial sector of San Luis Potosí.

I.B. Problem to be studied.

This study seeks to contribute to the understanding of the industrial setting where it was conducted. To the author's knowledge, little has been researched related to strategies followed by general managers in San Luis Potosí in terms of financial performance, major organizational activities, the influence of ownership or professional management status on the strategy selected, or the relationship of the strategy selected to the degree of formal education.

A clearer understanding of the strategies followed by the firms classified in the industries under study is important because businesses are facing both increasing competition and changing environments, which require accurate decisions in order to break the competitive environment and reestablish it under improved conditions for the firm.

Specifically, the problem to be studied is whether Miles and Snow's (1978) and Porter's (1980) typologies of business strategy are useful as a framework to study strategy-making in San Luis Potosí.

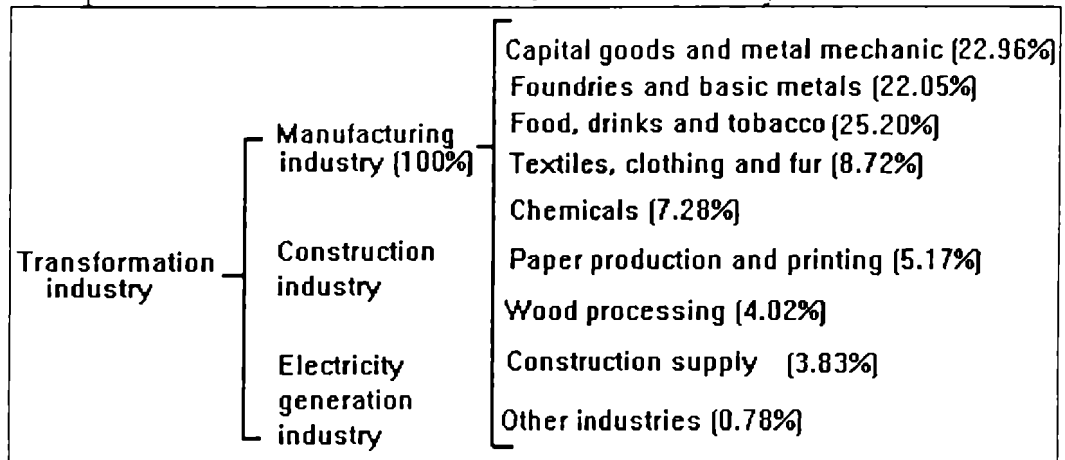
This seems to be an important research problem because much knowledge is needed among practitioners and academicians related to competitive strategy implementation. On the one hand, the answers found in this research should provide managers with a reference framework for strategic planning. It is expected that this research will contribute to their knowledge of how strategy categories relate to financial performance, the firm's major organizational activities, the professional or general management status, and the decision maker's educational level. On the other hand, this research may serve academicians as a basis for further research in

the field of strategic planning in Mexico's manufacturing context, which in turn will assist managers in making wiser decisions for their firms.

I.C. Scope of the study.

The study was conducted in five industrial sectors of the city of San Luis Potosí and its metropolitan area. These sectors were: the capital goods industry, the metal mechanic industry, the foundry industry, the construction supply industry, and the chemical industry. They were selected for the study because they are more developed in terms of technology, managerial capabilities and industrial organization than other manufacturing sectors such as the food, beverage and tobacco, or the furniture and wood-processing industries which are--for the most part--more fragmented, domestic shops (ITESM-SLP-CEE, 1993). The sample included micro, small, medium and large businesses. Other sectors that belong to the manufacturing industry are the textile sector, and the paper production and printing sector (see Graph I.C.1). The manufacturing industry accounts for 30% of the state's GNP (ITESM-SLP-CEE, 1992, p.27), and the sectors of interest for this research account for 56.12% of the state's manufacturing industry (or 16.84% of the states' GNP). Manufacturing industry as a whole accounts for 80% of production of the state's transformation industry, which also includes construction (18%) and generation of electricity (2%).

Graph I.B.1. Classification of the transformation industry in San Luis Potosí.



Source: ITESM-SLP-CEE, p.32.

*Percentages indicate an index composed of the relative importance of the following variables: number of firms, number of employees, amount of salaries, related expenses, and generated income.

The following chapter discusses the related academic literature, which serves as the methodological framework for this research.

II. REVIEW OF RELATED LITERATURE.

II.A. Definition of strategy.

The term *strategy* has been defined in a variety of ways. Most definitions include a deliberate and conscious set of guidelines that determines future decisions into the future (Mintzberg, 1978). Mintzberg distinguishes between *intended* strategy and *realized* strategy. The former is an *a priori* conceptualization of the term and more closely resembles a plan to be followed. The latter is defined by Mintzberg as a pattern in a stream of decisions.

Chandler (1962, p.13) defined strategy as "...the determination of the basic long-term goals and objectives of the enterprise and the adoption of courses of action and the allocation of resources necessary for carrying out these goals."

These two definitions underline a factor common to strategy which is of interest to this research: strategy is what administrators do, or at least intend to do, to achieve results perceived as positive for the organization they manage.

Ansoff (1988) proposes that strategy consists of several sets of decision-making rules for the guidance of organizational behavior. These are:

1. Yardsticks by which the present and future performance of the firm is measured. The quality of these yardsticks is usually termed *objectives*, and the desired quantity *goals*.
2. Rules for developing the firm's relationship with its *external* environment: *what* products-technology the firm will develop, *where* and *to whom* products are to be sold, and *how* the firm will gain advantage over competitors. This set of rules is called the product-market or *business strategy*.

3. Rules for establishing the internal relations and processes *within* the organization; this is frequently called *administrative strategy*.
4. The rules by which the firm conducts its day-to-day business, called major *operating policies*.

Ansoff (1988) defines several distinguishing characteristics of a business strategy:

1. The process of business strategy formulation results in *no immediate action*. Rather, it sets the general directions in which the firm will grow and develop.
2. Therefore, strategy must next be used to generate strategic projects through a *search process*. The role of strategy in this search is, first, to *focus* on areas defined by strategy, and second, to *filter out* the uncovered possibilities which are inconsistent with the strategy.
3. Thus, *strategy becomes unnecessary whenever the historical dynamics of an organization will take it where it wants to go*; this is to say, when the search process is already focused on preferred areas.
4. At the time of strategy formulation, it is not possible to enumerate all the project possibilities which will be uncovered. Therefore, strategy formulation must be based on *highly aggregated, incomplete and uncertain information* about classes of alternatives.
5. When the search uncovers specific alternatives, the more precise, less aggregated information which becomes available may cast doubts on the wisdom

of the original strategy choice. Thus, successful use of strategy requires *strategic feedback*.

6. Since both strategy and objectives are used to filter projects, they appear to be similar. Yet they are distinct. *Objectives represent the ends* which the firm is seeking to attain, *while the strategy is the means to these ends*. The objectives are higher-level decision rules. A strategy which is valid under one set of objectives may lose its validity when the objectives of the organization are changed.
7. Finally, strategy and objectives are interchangeable; both at different points in time and at different levels of organization. Thus, some attributes of performance (such as, for example, market share) can be an objective of the firm at one time and its strategy at another. Further, as objectives and strategy are elaborated throughout an organization, a typical hierarchical relationship results: *elements of strategy at a higher managerial level become objectives at a lower one*.

Also, Ansoff makes an important distinction between two related types of strategy used to characterize the thrust of the firm's strategic development. The first is called the *strategic portfolio strategy* and the second the *competitive strategy*.

The portfolio strategy conceives the firm as an assembly of distinctive *strategic business areas* (SBA's), each of which offers different future growth/profitability opportunities and/or will require different competitive approaches. Competitive

strategy, on the other hand, specifies the distinctive approach which the firm intends to use in order to succeed in each of the strategic business areas.

This research focuses on the *competitive strategy* of the firm and assumes that the *portfolio strategy* is determined by corporative managers not by the top managers of the SBA.

Several typologies of strategy exist in the academic literature (Buzzell et al. 1975; Uterback and Abernathy, 1975; Hofer and Achendel, 1987; Vesper, 1979; Wissema et al. 1980; Porter, 1980; Miles, 1982). All of them are aimed at finding common patterns in strategy selection among firms competing in a specific industry. Galbraith and Schendel (1983) provide a summary of the major characteristics of each of them (see Table II.A.1).

Table II.A.1. Some typologies of strategy, authors and major characteristics.

<u>Author and strategy label</u>	<u>Characteristics of strategy type</u>
Buzell <i>et al.</i> (1975)	
(1) Building	High investment to increase market share
(2) Holding	Investment at market share norms to maintain market share
(3) Harvesting	Low investment allowing market share to decrease, cost controls to generate cash flows and profitability

Table II.A.1. (Continued)

Utterback and Abernathy (1975)	
(1) Performance maximizing	Emphasis on product and/or service performance, technology, and product R&D emphasized
(2) Sales maximizing	Market emphasis to increase total sales and market share of firm
(3) Cost minimizing	Emphasis placed on processes, technology, and R&D to decrease total cost of production
Hoffer and Schendel (1978)	
(1) Share increasing	High investment to increase market share
(2) Growth	Maintain position in expanding markets, investment at industry norms
(3) Profit	Investment at industry norms, cost controls to "throw off cash"
(4) Market concentration and asset reduction	Realignment of resources to focused, smaller segments
(5) Turnaround	Improve strategic posture, may require investment
(6) Liquidation	Generate cash while withdrawing from market
Vesper (1979)	
(1) Multiplication	Expansion of market share by multiplying present market structures
(2) Monopolizing	Eliminate competition, establish entry barriers, and control resources
(3) Specialization	Specialize in products and/or production process
(4) Liquidation	Give up business and market position

Table II.A.1. (Ends)

Wissema <i>et al.</i> (1980)	
(1) Explosion	Improve competitive position in short-term
(2) Expansion	Improve competitive position in long-term
(3) Continuous growth	Maintain position in expanding markets, normal investment
(4) Slip	Give up market share to generate cash in growing market
(5) Consolidation	Give up market share to generate cash in stable market
(6) Contraction	Liquidate assets and terminate market position
Porter (1980)	
(1) Cost leadership	Efficiency, experience curve policies, overhead control, and other cost reductions
(2) Differentiation	Creating uniqueness in product and/or service
(3) Focus	Focusing on specific buyer group, or market
Miles (1982)	
(1) Domain defense	Preservation of traditional product-market
(2) Domain offense	Attacking strategies based on
	a) Product innovation
	b) Market segmentation

As can be seen from the above table, a variety of typologies exists in the academic literature which employ model strategy selection, depending on the objectives of the firm as seen by each author. For example, Porter's generic strategies were constructed in relationship to profitability performance, while

Buzzels' generic strategies are directly related to market share performance (Galbraith and Schendel, 1983).

The following three sections address the review of the literature specifically related to Miles and Snow's (1978) and Porter's (1980) typologies of strategy since both comprise the core methodological framework of this research.

II.B. Literature related to Miles and Snow's typology of strategic orientations.

Miles and Snow (1978) identified three problems of organizational adaptation (the adaptive cycle): the entrepreneurial, engineering, and administrative problems. The entrepreneurial problem refers to the selection of a specific product or service and a target market, or market segment which the firm selects to serve. The engineering problem involves the creation of a system which puts management's solution to the entrepreneurial problem into actual operation. The administrative problem is primarily that of rationalizing and stabilizing those activities which successfully solve problems faced by the organization during the entrepreneurial and engineering phases. Miles and Snow proposed four types of paradigms by which organizations frame the three problems described. The authors, based on their own research and review of the literature, propose that firms can be classified within one of the following four types of organizational adaptation: defenders, prospectors, analyzers and reactors.

Defenders are organizations which have narrow product market domains. Top managers in this type of organization are highly expert in their organization's limited area of operation but do not search outside of their domains for new

opportunities. As a result of this narrow focus, these organizations seldom need to make major adjustments in their technology, structure, or methods of operation. Instead, they devote primary attention to improving the efficiency of the existing operations.

Prospectors are defined as organizations which almost continually search for market opportunities and which regularly experiment with potential responses to emerging environmental trends. Thus, these organizations are the creators of change and uncertainty to which their competitors must respond. However, because of their strong concern for product and market innovation, they usually are not completely efficient.

Analyzers are organizations which operate in two types of product market domains: one relatively stable, the other changing. In their stable areas, these organizations operate routinely and efficiently through the use of formalized structures and processes. In their more turbulent areas, top managers watch their competitors closely for new ideas and then rapidly adopt those which appear to be the most promising.

Reactors are the organizations in which top managers frequently perceive change and uncertainty occurring in their organizational environments but are unable to respond effectively. Because this type of organization lacks a consistent strategy-structure relationship, it seldom makes adjustments of any sort until forced to do so by environmental pressures.

Strategy researchers have elaborated on Miles and Snow's work. Hambrick (1983) tested and extended the Miles and Snow typology. In particular, he was interested in researching: 1) how the industry environment influences the effectiveness of Miles and Snow's strategic types, and 2) how the strategic types differ in their functional tendencies. Based on a sample of businesses in the PIMS (Profit Impact of Marketing Strategy) data base, the study explored the effectiveness of the strategic types in the different environments and the ways in which defenders and prospectors differed in their functional attributes. The author reported that defenders and prospectors differed in their performance tendencies depending on the nature of the environment and the performance measure used. Defenders outperformed prospectors in terms of current profitability and cash flow in every type of environment examined: growth industry, mature industry, noninnovative industry, and innovative industry. Prospectors outperformed defenders in terms of market share gains, but only in innovative industries. In such industries, prospectors were rewarded for their adaptive stance. In noninnovative industries, prospectors engaged in "unnecessary" adaptation, thus receiving no share reward while incurring low profits and cash flows.

Shortell and Zajac (1990) conducted a study that sought to test the reliability and validity of Miles and Snow's typology. Based on data from a sample of 400 organizations in the hospital industry (collected at two points in time), the authors examined dimensions of the typology using both perceptual self-typing and archival data from multiple sources. The authors were interested in testing the following hypotheses:

1. Organizations classified as prospectors are likely to: (a) place greater emphasis on new service and new market development strategies, (b) offer more diversified services, (c) have more diversified new services initiated in recent years, (d) have a higher ratio of diversified to nondiversified services, (e) offer more high-technology services, and (f) have a greater number of new diversified services planned for the future than organizations classified as analyzers. Analyzers are more likely than defenders to have the higher levels noted.
2. Organizations classified as defenders will have the lowest percentage of their services in high-growth areas, and prospectors will have the highest percentage in high-growth areas. Analyzers will occupy an intermediate position.
3. Organizations classified as prospectors will emphasize new market and new service development strategies in their core business more than analyzers who, in turn, will emphasize such strategies more than defenders.
4. Organizations classified as prospectors are likely to: (a) offer a greater number of diversified services two years after data are first collected, and (b) initiate more new diversified services over a two-year period than analyzers. Analyzers will have higher levels than defenders.
5. Organizations classified as defenders will score the highest on planning process formality of the three types studied, followed by analyzers and prospectors.
6. Organizations classified as prospectors will score the highest on planning innovativeness of the three types studied , followed by analyzers and defenders.

7. Organizations classified as prospectors will make the strongest market research efforts of the three types studied, followed by analyzers and defenders.

Reactor firms were not included in the study because they lack a consistent strategy; thus no *a priori* predictions could be made regarding their behavior.

The results found by Shortell and Zajac (1990) provide strong support for the measurement validity of Miles and Snow's (1978) strategic types. Of the 26 analyses of variance, 24 were significant in the predicted ordering. For one of the exceptions--the number of new diversified services offered in the two years preceding the second set of data--results were in the predicted direction, but the overall differences were not statistically significant. The second exception involved planning process formality in which, contrary to prediction, prospectors and analyzers scored higher than defenders. According to Shortell and Zajac (1990), this finding suggests that prospectors may require a more formal planning system than other strategic types to improve their responses to new market opportunities.

Snow and Hrebiniak (1980) examined the relationships among strategy, distinctive competence, and organizational performance in four industries: plastics, semiconductors, automotive, and air transportation. The following hypotheses were tested in the Snow and Hrebiniak study:

1. Top managers will report that all four strategies are being pursued in their industry with defenders, prospectors, and analyzers distributed about equally and far outnumbering reactors.

2. Top managers who identify their organizations as defenders will perceive distinctive competence in general management, production, applied engineering, and financial management.
3. Top managers who identify their organizations as prospectors will perceive distinctive competence in general management, market research, product research and development, and basic engineering.
4. Top managers who identify their organizations as analyzers will perceive distinctive competence in general management, production, applied engineering, and marketing and selling.
5. Top managers who identify their organizations as reactors will have no consistent patterns in their perceptions of distinctive competence.
6. Defenders, prospectors, and analyzers will be better performers than reactors in each of the industries studied.

Their findings indicate that the managers of the firms studied perceived the four strategy types proposed by Miles and Snow (1978) to be present in their industries. In addition, their findings indicate that: 1) defenders, prospectors, and analyzers show competence in general and financial management; 2) defenders and prospectors have identifiable but different configurations of distinctive competence, while analyzers' special capabilities are considerably less apparent; 3) reactors have no consistent pattern of distinctive competence; and 4) although their data are only suggestive, defenders, prospectors, and analyzers outperform reactors in competitive industries, but not in an industry that is highly regulated.

Smith, Guthrie and Chen (1986) conducted a study in 47 electronic manufacturing firms that investigated Miles and Snow's typology, and its relationship with organizational size and organizational performance. Specifically, the study investigated:

1. Miles and Snow's typology using a multivariate approach. The objective was to determine the extent to which four clusters found in the study resembled the prospector, analyzer, defender and reactor strategies described by Miles and Snow.
2. The relationship between Miles and Snow's four strategies and organizational performance.
3. The relationship between strategy, organizational size, and performance.

The authors reported in their study:

1. Four different strategies resembling Miles and Snow's typology.
2. That defenders, analyzers and prospectors perform equally well and consistently outperform reactors.
3. That there is a significant interaction between strategy and size on performance.

The three strategies--reactors were eliminated from the study--do not perform equally well under different size conditions. Generally, defenders perform better than analyzers as small firms, prospectors perform better than defenders and analyzers as medium to large firms, and analyzers perform better as very large firms.

Golden (1992) conducted a study in the hospital service industry based on Miles and Snow's methodology. His study focused on proposing and testing which decisions and activities should be controlled by the individual strategic business unit

(SBU). The study suggests that the link between an SBU strategy and performance is moderated by the SBU's relationship to corporate management. The results of the study indicate that SBU performance is enhanced when: 1) SBU's with an external strategic orientation control environmental monitoring activities and strategic decision analysis, and 2) SBU's with an intraorganizational orientation control those activities relating to operation. Weaker SBU performance is associated with SBU control over those functions and activities not central to the SBU's business strategy.

II.C. Literature related to Porter's generic competitive strategies.

Porter (1980) suggested three types of generic strategies for creating a defensible position and outperforming competitors in a given industry. These strategies are: overall cost leadership, differentiation, and focus. A firm achieves overall cost leadership in the industry through a relatively high market share or through other advantages, such as favorable access to raw material. A firm will adopt a strategy of aggressive construction of efficient-scale facilities, tight costs and overhead controls, avoidance of marginal customer accounts, and cost minimization in areas such as research and development, service, sales force and advertising. These measures result in above average returns--even in the face of strong competitive forces--which are reinvested in new equipment and modern facilities in order to maintain leadership.

A firm is considered to have an advantage in terms of differentiation when it offers a product or service that is perceived industrywide to be unique along several dimensions, such as design or brand image, technology, features, customer service,

and dealer network. Customers are often willing to pay higher prices for this uniqueness. Differentiation provides for brand loyalty by customers, lower sensitivity to price, increased margins, and entry barriers.

A focus strategy exists when a firm, by focusing on a particular consumer group, a segment of a particular product line, or a geographic market--each functional policy being developed accordingly--is able to serve its chosen narrow strategic target more effectively and efficiently than competitors who are competing more broadly. A focus strategy is used in conjunction with either cost leadership or differentiation in order to achieve higher-than-average industry profitability.

These generic strategies represent three broad types of strategic groups, and thus the choice of strategy "can be viewed as the choice of which strategic group to compete in" (Porter, 1980, p.149).

Porter (1980) also includes the possibility of a low-profit alternative that, by definition, should be avoided. A firm is said to be "stuck in the middle" if it lacks a clear definition of its generic strategy. Top managers make a less-than-optimum combination of two of the three of them without successful results. Firms oriented toward specific strategies should outperform firms characterized by Porter as "stuck in the middle."

Porter (1980) recognizes that the strategies firms use to compete in an industry can differ in a wide variety of ways, and he proposes a number of "strategic dimensions" which can capture the possible differences among the strategic options of firms in a given industry. These dimensions are comprised of competitive

methods that include: brand identification, channel selection, technological leadership, cost position, service and leverage, among others.

Researchers have elaborated on Porter's competitive strategies. Miller (1988) investigated the relationships of Porter's business strategies to the structures and environments of 89 undiversified firms. Specifically, the Miller study aimed at testing the following hypotheses:

1. The strategy of innovation will be positively associated with environmental uncertainty (unpredictability and dynamism).
2. Marketing differentiation will be positively associated with environmental uncertainty (unpredictability and dynamism).
3. The strategy of cost leadership will be inversely associated with environmental uncertainty (unpredictability and instability).
4. Strategic breadth will be positively associated with market heterogeneity.
5. The strategy of innovative differentiation will be positively associated with the use of liaison devices, technocrats, and delegation.
6. The marketing differentiation strategy will not be associated with the use of technocrats, liaison devices, or delegation of authority.
7. The cost leadership strategy will be inversely associated with the use of technocrats, liaison devices, and delegation, and positively associated with the use of formal controls.

8. Strategic breadth will be associated with the use of technocrats, delegation, liaison devices, and formal controls.
9. The association predicted by hypotheses 1 through 8 will be stronger in groups of high performers than in groups of low performers.
10. The associations of strategy and structure with performance will not be significant.
11. The associations between environment and structure will not differ between successful and unsuccessful groups of firms.
12. The associations between environment and structure will not be significant.

The results of this study show that strategies must be matched with complementary environments and structures to promote success. The strategy of innovative differentiation is most likely to be pursued in uncertain environments and correlates with the use of technocrats and liaison devices. The strategy of cost leadership is associated with stable and predictable environments and correlates with the use of controls. Unfocused strategies make much use of liaison devices. These relationships were more likely to be significant in groups of high-performing firms than in groups of poor performers. The results of the paper suggest that some of Porter's strategies will probably be found in some industries while not in others, depending on the industries' environmental characteristics.

Dess and Davis (1984) demonstrated the viability and usefulness of categorizing firms within an industry into strategic groups based on their intended strategies.

Their underlying proposition is that variations in intraindustry profitability and growth may be explained by strategic group membership. Their study was composed of three phases. Phase 1 consisted of a field study that examined the relationship between a firm's "intended" strategy--represented by the competitive methods considered most important by the firm's top management team--and the presence of strategic orientations within an industry. These strategic orientations were classified based on which of the three alternative generic strategies--focus, low cost, or differentiation--they appear to represent most closely. Phase 2 of Dess and Davis' study consisted of a panel of experts who assessed the importance of each of the identified competitive methods for each generic strategy. The use of that panel served to corroborate the researchers' inferences drawn from the field study. Phase 3 used the perceptions of the CEO's to cluster firms that exhibited a similar strategic orientation into distinct groups. Dess and Davis' study indicates that variations in intraindustry profitability and growth are found to be related to strategic group membership.

II.D. Literature related to testing both Miles and Snow's and Porter's typologies.

A study by Segev (1989) evaluated, analyzed and compared Porter's overall cost leadership, differentiation, focus, and "stuck in the middle" generic competitive strategies, and Miles and Snow's types of organizational adaptation. Thirty-one strategic variables in the context of environment, strategy content, strategy-making process, organizational structure, performance, and organizational characteristics were evaluated by a board of judges for each strategy, within its typology. A synthesis of the two typologies was suggested. The outcome of this

synthesis is a typology incorporating the relevant components lacking in Porter's typology, i.e., the environmental components of uncertainty, dynamism, and complexity; level of risk; and the size of the strategy-making team. At the same time, certain information missing from Miles and Snow's typology on liquidity rates is provided. The author notes that Porter's typology focuses mainly on more concentrated industries with larger business units, while Miles and Snow's typology focuses on industries with more competitors.

II.E. Literature related to the business owner or professional manager status.

Some answers to the question of why some firms are managed by their owner while others are managed by a professional manager can be found in the body of literature related to agency costs. Total agency costs are made up of 1) monitoring expenditures made by the principal to regulate and monitor the behavior of the agent, 2) bonding expenditures made by the agent to reassure principals, and 3) residual agency costs, or costs due to unresolved conflicts of interest between agent and principals (Jensen and Meckling, 1976).

In general, an agency relationship is a contract under which one or more persons (the principal or principals) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent. One example is the relationship between a firm's outside investors and managers. In this case, outside investors may turn over day-to-day managing of their investment to managers in the firm who may or may not hold a debt or equity position in the firm. Barney and Ouchi (1986) report that Jensen and Meckling (1976) explore the implications of agency relations by focusing on the incentives that motivate managers who hold less than 100 percent debt or equity

interest in a firm. They show that, in a wide variety of circumstances, these managers have incentives to make decisions that are inconsistent with the interest of "outsiders" (such as outside stockholders) in order to maximize their personal wealth and utility. Outside investors may engage in a wide variety of activities to monitor the activities and decisions of managers. In principle, such monitoring increases the likelihood that the managers will make decisions consistent with the self-interest of outside investors. Managers can bond themselves to outside investors by designing arrangements that will penalize them as individuals should they make decisions that violate the interests of outside investors. However, according to Jensen and Meckling, no matter what monitoring and bonding mechanisms are employed, at least some conflict of interest between outside investors and managers will generally continue.

Berle and Means (1967) state that as the ownership of corporate wealth has become more widely dispersed, ownership and control over it have come to lie less in the same hands. Under the corporate system, control over industrial wealth can be and is being exercised without any such interest. Ownership of wealth, without appreciable control, and control of wealth, without appreciable ownership, appear to be the logical outcomes of corporate development.

II.F. Literature related to the influence of managerial characteristics on strategy.

Gupta and Govindarajan (1984) investigated the impact of certain managerial characteristics on the firm's effectiveness in strategy implementation. These characteristics are: experience in marketing and sales, willingness to take risks, and tolerance for ambiguity.

The authors, arguing that the scope of research on strategy implementation has remained quite narrow, propose this study aimed at contributing to fill that gap. The Gupta and Govindarajan study was based on the MacMillan (1982) typology of business-level strategy: aggressive build, gradual build, aggressive maintain, selective maintain, competitive harasser, prove viability, and divest. They emphasize the claim that their study focuses on strategy implementation for ongoing businesses only. Thus, its focus is on the continuum from "pure build" to "pure harvest" and does not deal with the implications of a "divest" strategy.

Their research hypotheses are:

1. Experience in marketing and sales on the part of the general manager will make a greater contribution to effectiveness strategy implementation in the case of strategic business units at the "build" end of the strategy spectrum than in the case of strategic business units at the "harvest" end.
2. Willingness to take risks on the part of the general manager will make a greater contribution to effectiveness in strategy implementation in the case of strategic business units at the "build" end of the strategy spectrum than in the case of strategic business units at the "harvest" end.
3. Tolerance for ambiguity on the part of the general manager will make a greater contribution to effectiveness in strategy implementation in the case of strategic business units at the "build" of the strategy spectrum than in the case of strategic business units at the "harvest" end.

The authors' findings are: greater marketing and sales experience, greater willingness to take risks, and greater tolerance for ambiguity contribute to effectiveness in the case of "build" strategic business units but hamper it in the case

of "harvest" strategic business units. In practice, these findings hold relevance for those executives responsible for selection, development, and appointment of middle-level general managers in diversified corporations. On the other hand, in theory, the primary relevance of the Gupta and Govindarajan study lies in its extension of the contingency theory of organization from the interfirm to the intrafirm context.

A study conducted by Miller and Toulouse (1986) investigated the relationship that three components of the chief executive officers' personality (flexibility, need for achievement, and locus of control) have with the strategies, structures, decision-making methods, and performance of their firms. The authors argue that early work in the area indicates CEO personality will be most closely related to strategy and structure in organizations that are small and have centralized power. In this type of firm, the general manager can make the greatest impact on his organization; thus, their study concentrated on smaller firms (average number of employees was 100). The results showed that flexibility is associated with intuitively formulated, risk-embracing, reactive, niche strategies, and extremely informal organizational structures. Flexibility seems to have the most positive implications for performance in smaller firms and stable environments, settings in which simplicity and informality are more likely to be virtues. The chief executive officer's need for achievement was related to a more analytical, proactive, marketing-oriented strategy with broad focus, and with a more sophisticated, centralized and bureaucratic structure. This personality dimension was not related to performance, perhaps because it is suitable for larger firms. Locus of control correlated with a

strategy of future-oriented innovation, which enjoyed particular success in dynamic environments.

Resenos (1980) investigated the relationship between the following variables: age, educational level (i.e. Ph.D. or no formal level of education), leadership style (autocratic or participative), job satisfaction (i.e. self-respect, prestige), and productivity (in terms of time and accomplishment of results) of 270 executives in 22 firms located in metropolitan Mexico City. The research proposed the following hypotheses.

1. The leadership style that encourages more participation from the subordinates achieves higher productivity.
2. More participative leadership styles produce higher job satisfaction among the employees.
3. The managers who achieve a high level of job satisfaction tend to be more productive than those who do not.
4. Senior managers tend to have more participative leadership styles than junior managers.
5. Senior middle-line managers and executives tend to experience more job satisfaction than junior executives.
6. Senior managers tend to be more productive than junior managers.
7. Senior managers tend to achieve higher levels of formal education than junior executives.
8. Highly educated managers tend to practice participative leadership.
9. Highly educated middle-line managers and executives tend to experience higher job satisfaction than those who have a lower level of education.

10. Highly educated managers tend to be more productive than those who are less educated managers.

This study showed that sampled managers are on average 38 years old, their educational level is high, and their leadership styles tend to be participative. Also, their job satisfaction and their productivity is high. Correlation analyses showed positive associations between leadership styles (more participative), job satisfaction, and productivity. No significant associations were found between these variables with the level of education and age.

This chapter has discussed previous research done in several areas in the field of business strategy. Presented were: 1) a summary of different typologies of business-level strategies, 2) Miles and Snow's typology of strategy and its contribution to match their so called "adaptive cycle," 3) Porter's generic strategies and a discussion of how these strategies can contribute to attain superior performance in the firm, 4) commentary on a study that proposes a synthesis of Miles and Snow's and Porter's typologies of strategy, 5) studies investigating the influence of ownership or professional management status on the administration of the firm, and 6) studies investigating the influence of certain managerial characteristics on the strategy, structure, and performance of the firm. Based on this body of literature, a number of questions seem appropriate. 1) Are Miles and Snow's and Porter's typologies of strategy applicable in industrial San Luis Potosí? 2) Can the categories of strategy proposed in these typologies be related to certain financial performance indicators? 3) To which organizational activities can these typologies be associated? 4) Is there any association between the business owner or professional manager status and the strategy implemented? 5) Is there any association between the

business strategy and the level of formal education of the person responsible for its implementation?

The answers found to these questions will be important contributors to the advancement of our knowledge of business-level strategy in industrial San Luis Potosí as managers need to make better decisions for their firms and academicians need to conduct research that helps managers improve the quality of their decisions. The following chapter operationalizes these questions in testable research hypotheses.

III. HYPOTHESES OF THE RESEARCH.

In order to operationalize the fundamental research question of the study regarding the relationship between the strategy selected in terms of Miles and Snow (1978) and Porter (1980) with certain financial performance indicators of the firm, the business' major organizational activities, and some of the general manager's characteristics, the following propositions are presented.

III.A. Propositions related to Miles and Snow's strategic orientations.

1. Top managers will report that all four strategies are being pursued in their industrial sector.

1a. The hypothesis underlying this proposition is that, in each industry sector studied, at least one each of Miles and Snow's (1978) strategic orientations will be present.

2. In each industrial sector under study, prospector firms will be better performers than reactor firms.

This proposition can be broken down into the following testable hypotheses based on defined financial indicators.

2a. Compared to the industry's average performance, prospector firms will obtain higher net profit margins than reactor firms.

2b. Compared to the firm's net profit margin under the previous strategic orientation, the current net profit margin will be higher under the prospector strategy than under the reactor strategy.

2c. Compared to the firm's market share under the previous strategic orientation, the current market share will be higher under the prospector strategy than under the reactor strategy.

- 2d. Prospector firms have increased their net profit margin more than reactor firms over the last three years.
- 2e. Prospector firms have increased their market share more than reactor firms over the last three years.
- 3. In each industrial sector under study, analyzers will be better performers than reactors.

This proposition can be broken down into the following testable hypotheses based on defined financial indicators.

- 3a. Compared to the industry's average performance, analyzer firms will obtain higher net profit margins than reactor firms.
- 3b. Compared to the firm's net profit margin under the previous strategic orientation, current net profit margin will be higher under the analyzer strategy than under the reactor strategy.
- 3c. Compared to the firm's market share under the previous strategic orientation, current market share will be higher under the analyzer strategy than under the reactor strategy.
- 3d. Analyzer firms have increased their net profit margin more than reactor firms over the last three years.
- 3e. Analyzer firms have increased their market share more than reactor firms over the last three years.
- 4. In each industrial sector under study, defenders will be better performers than reactors.

This proposition can be broken down into the following testable hypotheses based on defined financial indicators.

- 4a. Compared to the industry's average performance, defender firms will obtain higher net profit margins than reactor firms.
- 4b. Compared to the firm's net profit margin under the previous strategic orientation, the current net profit margin will be higher under the defender strategy than under the reactor strategy.
- 4c. Compared to the firm's market share under the previous strategic orientation, the current market share will be higher under the defender strategy than under the reactor strategy.
- 4d. Defender firms have increased their net profit margin more than reactor firms over the last three years.
- 4e. Defender firms have increased their market share more than reactor firms over the last three years.
- 5. Different organizational activities will characterize each strategic orientation.
The following hypotheses derived from Snow and Hrebiniak (1980) operationalize the above proposition.
 - 5a. Prospectors will emphasize the following organizational activities: general management, product research and development, market research, and basic and applied engineering.
 - 5b. Analyzers will emphasize the following organizational activities: general management, production, basic and applied engineering, and marketing and sales.
 - 5c. Defenders will emphasize the following organizational activities: general management, financial management, production, and basic and applied engineering.

5d. Reactors will make no emphasis on any organizational activity.

6. The strategic orientation pursued will be different depending on whether the person responsible for its implementation is the business owner or a professional general manager.

This proposition can be broken down into the following hypotheses:

- 6a. The professional general manager will implement a prospector strategy, while the business owner will implement a defender strategy.
- 6b. The professional general manager will implement an analyzer strategy, while the business owner will implement a defender strategy.
7. The strategic orientation of the firm will be different depending on the academic education of the person responsible for its implementation

The hypotheses operationalizing the above proposition are stated as follows:

- 7a. Highly educated--having at least bachelor's degree--decision makers will implement a prospector strategy, while less educated--having at most a high school diploma--decision makers will implement a defender strategy.
- 7b. Highly educated--having at least bachelor's degree--decision makers will implement an analyzer strategy, while less educated--having at most a high school diploma--decision makers will implement a defender strategy.

III.B. Propositions related to Porter's generic competitive strategies.

1. Top managers will report that all four strategies are being pursued in their industrial sector.

The hypothesis that operationalizes this proposition follows:

- 1a. In each industry sector studied, at least one of each of Porter's (1980) competitive strategies will be present.

2. Firms pursuing a general cost leadership strategy will be better performers than "stuck in the middle" firms.

This proposition can be broken down into the following testable hypotheses based on defined financial indicators.

- 2a. Compared to the industry's average performance, firms following a general cost leadership strategy obtain higher net profit margins than "stuck in the middle" firms.
 - 2b. Compared to the firm's net profit margin under the previous competitive strategy, the current net profit margin is higher under the general cost leadership strategy than under the "stuck in the middle" position.
 - 2c. Compared to the firm's market share under the previous competitive strategy, the current market share is higher under the general cost leadership strategy than under the "stuck in the middle" position.
 - 2d. Firms following a general cost leadership strategy have increased their net profit margin more than "stuck in the middle" firms over the last three years.
 - 2e. Firms following a general cost leadership strategy have increased their market share more than "stuck in the middle" firms over the last three years.
3. Firms pursuing a differentiation strategy will be better performers than "stuck in the middle" firms.

This proposition can be broken down into the following testable hypotheses based on defined financial indicators.

- 3a. Compared to the industry's average performance, firms following a differentiation strategy obtain higher net profit margins than "stuck in the middle" firms.
- 3b. Compared to the firm's net profit margin under the previous competitive strategy, the current net profit margin is higher under the differentiation strategy than under the "stuck in the middle" position.
- 3c. Compared to the firm's market share under the previous competitive strategy, the current market share is higher under the differentiation strategy than under the "stuck in the middle" position.
- 3d. Firms following a differentiation strategy have increased their net profit margin more than "stuck in the middle" firms over the last three years.
- 3e. Firms following a differentiation strategy have increased their market share more than "stuck in the middle" firms over the last three years.
- 4. Firms pursuing a cost leadership focus strategy will be better performers than "stuck in the middle" firms.

This proposition can be broken down into the following testable hypotheses based on defined financial indicators.

- 4a. Compared to the industry's average performance, firms following a cost leadership focus strategy obtain higher net profit margins than "stuck in the middle" firms.
- 4b. Compared to the firm's net profit margin under the previous competitive strategy, the current net profit margin is higher under the cost leadership focus strategy than under the "stuck in the middle" position.

- 4c. Compared to the firm's market share under the previous competitive strategy, the current market share is higher under the cost leadership focus strategy than under the "stuck in the middle" position.
- 4d. Firms following a cost leadership focus strategy have increased their net profit margin more than "stuck in the middle" firms over the last three years.
- 4e. Firms following a cost leadership focus strategy have increased their market share more than "stuck in the middle" firms over the last three years.
- 5. Firms pursuing a differentiation focus strategy will be better performers than "stuck in the middle" firms.

This proposition can be broken down into the following testable hypotheses based on defined financial indicators.

- 5a. Compared to the industry's average performance, firms following a differentiation focus strategy obtain higher net profit margins than "stuck in the middle" firms.
- 5b. Compared to the firm's net profit margin under the previous competitive strategy, the current net profit margin is higher under the differentiation focus strategy than under the "stuck in the middle" position.
- 5c. Compared to the firm's market share under the previous competitive strategy, the current market share is higher under the differentiation focus strategy than under the "stuck in the middle" position.
- 5d. Firms following a differentiation focus strategy have increased their net profit margin more than "stuck in the middle" firms over the last three years.

5e. Firms following a differentiation focus strategy have increased their market share more than "stuck in the middle" firms over the last three years.

6. Different organizational activities will characterize each strategic orientation.

The following hypotheses, which operationalize the above proposition, were adapted from Snow and Hrebiniak (1980) who selected these organizational activities and applied them to Miles and Snow's typology. Using these organizational activities to operationalize each of Porter's categories appeared reasonable given that some studies have found some similarity between Miles and Snow's and Porter's categories (i.e. Segev, 1989).

6a. Firms pursuing a general cost leadership strategy will emphasize: general management, financial management, basic and applied engineering, production, and distribution.

6b. Firms following a differentiation strategy will emphasize: marketing and sales, market research, product research and development, and personnel.

6c. Firms following a focus cost leadership strategy will emphasize: general management, financial management, basic and applied engineering, production, marketing and sales, and market research.

6d. Firms following a differentiation focus strategy will emphasize: marketing and sales, market research, product research and development, basic and applied engineering, and personnel.

6e. "Stuck in the middle" firms will emphasize no organizational activity.

7. The competitive strategy pursued will be different depending on whether the person responsible for its implementation is the business owner or a professional general manager.

This proposition can be broken down into the following hypotheses:

- 7a. A professional manager will implement a general differentiation strategy, while the business owner will implement a general cost leadership strategy.
- 7b. A professional manager will implement a focus differentiation strategy, while the business owner will implement a focus cost strategy.
- 8. The competitive strategy implemented will be different depending on the academic education of the person responsible for its implementation.

The hypotheses operationalizing the above proposition are stated as follows:

- 8a. Highly educated--having at least a bachelor's degree--decision makers will implement a general differentiation strategy, while less educated--having at most a high school diploma--decision makers will implement a general cost leadership strategy.
- 8b. Highly educated--having at least a bachelor's degree--decision makers will implement a focus differentiation strategy, while less educated--having at most a high school diploma--decision makers will implement a focus cost strategy.

The above stated hypotheses will be tested throughout the following chapters using the statistical tools described in the methodology section of this study.

IV. METHODOLOGY.

A closed-ended questionnaire (see Appendix A) consisting of five sections was designed as the data collection instrument. Section 1 of the questionnaire identified the business by the industry in which it competed. Section 2, provided a description for each of Miles and Snow's strategic orientations with tailored examples for each industry in order to help the respondent select the description that best described the firm's current strategy. Section 3 provided a description for each of Porter's competitive strategies with tailored examples for each industry in order to help the respondent select the description that best described the firm's current. Section 4 gathered information related to the firm's characteristics, such as size (see Table IV.1), financial performance indicators (i.e., market share and net profit margin), time since the current strategy was implemented, person having final responsibility for implementing the firm's current strategy (i.e., the business owner or a professional manager), and organizational activities (i.e., distribution, financial management, or marketing and sales). Finally, section 5 asked the respondent to select the highest degree of formal education of the person with the final responsibility for implementing the firm's current competitive strategy (i.e., master's or bachelor's degree).

Table IV.1. Criteria for size classification.

Number of employees on the payroll	Annual sales range (N\$)*	Size**
Fewer than 15	Up to 572,940.50	Micro
Between 16 and 100	572,940 and 5,807,533.25	Small
Between 101 and 250	5,807,533.25 and 10,469,185.50	Medium
More than 250	Above 10,469,185.50	Large

* Divide by 3.1 to obtain U.S. dollars.

** Firms are classified according to the criterium (number of employees or annual sales) in which the highest rate was obtained.

Source: Secretary of Commerce (SECOFI), San Luis Potosí office.

The questionnaire was administered in a total of 184 firms in the city of San Luis Potosí and its metropolitan area over a five-week period (see Table IV.2). Since the information requested for this study required a comprehensive view of the firm's strategy, the person responding to the questionnaire was usually the general manager; in fact, 92% of the interviews were held with him or her. When this was not possible, a member of the top management team responded to the questionnaire.

Table IV.2. Sample firms studied.

Industry	Number of firms in the CANACINTRA directory	Questionnaires completed	%
Capital goods	47	11	23
Metal mechanic	123	76	62
Foundry	19	14	74
Construction supply	43	36	84
Chemical	56	47	84

The hypotheses discussed in Chapter III will be examined for the whole sample and according to industry. This is important for the following reasons. First, the audience of this research can be interested in having the "broad picture" of the industrial sectors studied, and from it make comparisons by industry. Second, results of this research may not be the same for all sectors studied. Even though examining similarities or differences among sectors does not form part of this research, it is assumed that some differences may exist. Third, studying all industries together as well as industry sectors separately provides more knowledge than studying either one separately.

Data from the firms--addresses, telephone numbers, and contact persons--were taken from the CANACINTRA directory of San Luis Potosí. CANACINTRA stands for the National Chamber of the Transformation Industry and is an association of businesspersons whose major purpose is to foment the development of that industry nationwide.

A pilot test of five interviews with general managers was undertaken by the researcher in order to target areas of improvement within the questionnaire. An additional pilot test of ten interviews was done by a group of students and an assistant professor previously trained by the researcher. Field work was conducted by a group of six students from the business administration's undergraduate program who were coordinated by an assistant professor.

Initial contact with the sample firms was made by telephone to obtain an appointment with the general manager; in most cases, general managers kindly accepted the offer to participate in the study. A letter which explained the purpose of the research and emphasized the confidentiality of the information to be solicited

was given to each member of the interviewing team. This provided the respondent with confidence and formally introduced the interviewer to the firm.

Interviews lasted an average of forty minutes. In some cases they took longer because the respondent showed interest in the research and, after completing the questionnaire, he or she offered additional comments related to the firm's plans or operations. Other interviews also took longer than average because the general manager was somewhat reluctant to answer financial performance issues or did not clearly understand certain questions. In this cases, interviewers had to devote more time to building rapport or explaining concepts.

The response rate was high (95%) and no major problems were found with the exception of five general managers who refused to answer the questionnaire and seven firms which were no longer in business or had changed addresses or telephone numbers.

The database was processed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics such as tables of frequencies and crosstabulations were first obtained in order to understand how data broke down in terms of: 1) size of sample firms in each sector studied, 2) Miles and Snow's (1978) and Porter's (1980) categories of strategy, 3) financial performance indicators, 4) the status of the person responsible for the firm's strategy--either professional manager or owner and, 5) degree of formal education of the person responsible for implementing the firm's strategy.

Correlation analysis was performed by associating the variables identifying strategy categories with the financial performance indicator variables, organizational activities variables, and manager's characteristics variables.

Statistical significance was determined if the observed significance level was 0.05 or less. In order to test the dependence of financial performance, organizational activities, and manager's characteristics upon the strategy type, chi-square and t-test analyses were performed. For these statistics, a significance of 0.05 or less was accepted.

Findings from these analyses and their implications for each of the hypotheses of interest are discussed in the following chapters for each sector under study, each chapter discusses one hypothesis.

Chapter V presents descriptive statistics with the purpose of providing the reader with a general overview of the industries studied. In chapter VI, the database was broken down by categories according to Miles and Snow's typology (1978) to learn whether all strategic orientations were present in each sector under study. In chapter VII, financial performance indicators were related to Miles and Snow's (1978) categories of strategy. Chapter VIII presents findings related to organizational functions using Miles and Snow's (1978) strategic orientations. Chapter IX reports findings on strategic orientation implementation depending on whether the person responsible for its implementation was the owner of the business or a professional manager. Chapter X presents findings concerning the general manager's formal education and its relationship to Miles and Snow's (1978) strategic categories. Chapter XI presents how firms are classified within each of Porter's (1980) generic strategies, while in chapter XII, financial performance indicators are related to Porter's competitive strategies. Chapter XIII reports findings related to organizational activities using Porter's (1980) competitive strategies, and chapter XIV reports findings on generic strategy implementation

depending on whether the person responsible for its implementation was a professional general manager or the owner of the business. Chapter XV presents findings on the general manager's formal education and its relationship to Porter's (1980) competitive strategies. Chapter XVI presents the study's conclusions along with its academic and managerial implications, while chapter XVII discusses its limitations and proposes priorities for future research.

V. DESCRIPTIVE STATISTICS.

This chapter provides the reader with information describing industrial San Luis Potosí. Its purpose is to help the reader achieve better understanding of the variables investigated.

As the reader may remember, the two typologies of business-level strategy used in this research are Miles and Snow's (1978) and Porter's (1980). The categories of strategy show the following distribution of responses for each typology (see Tables V.1 and V.2).

Table V.1. Frequency of Miles and Snow's categories of business-level strategy.

Category of strategy	Number of firms classified in that category*
Reactor	22
Defender	60
Analyzer	44
Prospector	55

* Three firms could not be classified into any of Miles and Snow's categories.

The above table shows that most firms are either defenders (33%) or prospectors (30%). This issue will have interesting implications when correlated to financial performance indicators, as the reader will see in the following chapters. The Table V.2 shows how the firms were classified according to Porter's typology.

Table V.2. Frequency of Porter's categories of business-level strategy.

Category of strategy	Number of firms classified in that category*
General cost leadership	50
General differentiation	86
Focus cost leadership	16
Focus differentiation	19
"Stuck in the middle"	10

* Two firms could not be classified in any of Porter's categories, and one case is missing.

From the above table, the reader can observe that 86 of the 181 firms (48%) follow a general differentiation strategy and 50 of the 181 firms (27%) were classified as general cost leadership. This finding will have important implications when related to financial performance indicators and other variables studied throughout this research.

In the industrial sectors investigated, 26% are micro (fewer than 15 employees or annual sales up to N\$572,940.5) and 50% are small-sized businesses (between 16 and 100 employees or annual sales between N\$572,950.50 and N\$5,807,533.25). Table V.3 presents this breakdown.

Table V.3. Size of the businesses in the sample.

Size	Number of firms	%
Micro	47	25.5
Small	91	49.5
Medium	26	14.1
Large	20	10.9

This provides a good idea as to the average size of the firms in the manufacturing industry in San Luis Potosí. Remember that the industries investigated account for 56% of the state's manufacturing activity and that the manufacturing industry as a whole accounts for 80% of production of the state's transformation industry.

The variables measuring the financial performance of the business show the following distribution of responses (see Tables V.4 to V.6).

Table V.4. Firm's net profit margin compared to the industry's average.

Financial result	Number of firms*
Below-average	35
Average	123
Above-average	25

* One case missing.

From the above table the reader can observe that most firms (67%) have obtained average results for the industry.

The following table presents the distribution of responses for the variables measuring changes in net profit margin and market participation from the previous to the current firm's strategy (see Table V.5).

Table V.5. Financial results compared to the previous strategy's results.

Financial result	Net profit margin changes*	Market share changes*
Increased considerably	14	16
Increased	59	61
Remained constant	92	83
Decreased	16	20
Decreased considerably	2	3

* One case missing.

The reader can observe that most managers perceive that the firm's net profit margin and market share remained constant after a change in strategy was implemented. However, for both financial performance indicators there are more firms that have improved their financial position than firms whose financial results have worsened. This finding leads to the conclusion that, in most cases, a change in the strategy followed will at least leave the firm in the same financial position.

Table V.6 presents the distribution of responses for the variables measuring changes in net profit margin and market participation over the last three years.

Table V.6. Financial results over the last three years.

Financial result	Net profit margin changes*	Market share changes*
Decreased	35	32
Remained constant	101	86
Increased	46	64

* Two cases missing.

As can be seen, in most cases net profit margin and market share have remained constant over the last three years. Also, there are more firms in which net profit margin and market share have increased than firms in which these financial performance indicators have worsened.

The level of emphasis placed on the main organizational activities of the firm will also be investigated in this research. For each organizational activity, Table V.7 shows the frequency of firms in each level of emphasis placed.

Table V.7. Level of emphasis placed on the firm's organizational activities.

Organizational activities*	Much emphasis placed (1)	Average emphasis placed (2)	Not much emphasis placed (3)
General management	105	58	9
Financial management	111	53	8
Marketing and sales	82	63	27
Market research	38	79	55
Product research and development	53	65	54
Engineering, basic and applied	56	74	41
Production	127	38	7
Distribution	85	63	24
Legal affairs	40	62	70
Personnel	12	75	28

* Numbers do not add up to 184 in each category because some cases are missing.

It is interesting to note that some firms place heavy emphasis on general management, financial management, marketing and sales, production, and distribution. These activities seem to be related to the day-to-day operation of the business. Average emphasis is placed on activities that may change the way firms do business. These activities may be product research and development, basic and applied engineering, market research, and personnel; they are more oriented towards finding new alternatives for improving the product, developing human

resources, and finding (or creating) new market needs. Finally, note that little emphasis is placed on legal affairs, which includes activities related to union conflict resolution. In industrial San Luis Potosí, firms do not have major problems with labor unions. In chapters VIII and XIII, the above organizational activities will be associated with Miles and Snow's and Porter's categories of strategy respectively. By doing so, the reader will have a clearer picture of the organizational activities that operationalize the business strategy, with the assumption that some organizational activities will be emphasized more in a company following one strategy and other activities will be emphasized more in an organization following a different strategy.

In relation to the person having the responsibility for the firm's strategy, statistics show that in most cases (72%) the business owner makes that decision (see Table V.8).

Table V.8. Status of the person responsible for the firm's strategy.

Responsible for the strategy	Firms in each category*
Business owner	131
Professional manager	46
Managerial team	5

* Two cases missing.

For the purposes of this research, the level of formal education of the person responsible for the business' strategy is considered important information. Table V.9 shows the distribution of firms in each category of formal education.

Table V.9. Education of the person responsible for the business' strategy.

Level of formal education	Person's responsible for the firm's strategy
Doctoral degree	2
Unfinished doctoral degree	0
Master's degree	35
Unfinished master's degree	11
Bachelor's degree	106
Unfinished bachelor's degree	15
High school	8
Unfinished high school	0
Junior high or elementary school	6
No formal education	1

The above table shows that most top managers (58%) have at least one bachelor's degree and that 20% have either a master's or doctoral degree. This means that general managers in industrial San Luis Potosí are well-educated professionals.

Regression analysis was done with strategy and size of the business as independent variables and each financial performance indicator as dependent variable. This was done to understand how important these dependent variables were in explaining financial performance. Table V.10 (for Miles and Snow's categories) and Table V.11 (for Porter's categories) show which independent variable was included in the regression equation using three different procedures for selecting variables.

Table V.10. Miles and Snow's categories and business size as explanation of financial performance.

	Stepwise	Backward	Forward
Firm's net profit margin compared to the industry's (DF)	MS* Adj. R-square =.06306	MS TE** Adj. R-square =.07672	MS Adj. R-square =.06306
Firm's net profit margin compared to the previous strategy (UN)	MS Adj. R-square =.01874	MS Adj. R-square =.01874	MS Adj. R-square =.01874
Firm's market share compared to the previous strategy (PM)	MS TE Adj. R-square =.06116	MS TE Adj. R-square =.06116	MS TE Adj. R-square =.06116
Firm's net profit margin for the last three years (MC)	TE Adj. R-square =.01603	TE Adj. R-square =.01603	TE Adj. R-square =.01603
Firm's market share for the last three years (PG)	MS TE Adj. R-square =.07771	MS TE Adj. R-square =.07771	MS TE Adj. R-square =.07771

*MS = Miles and Snow's typology **TE = Size of the business.

The cells indicate variables entered in the regression equation and its adjusted coefficient of determination. A low adjusted coefficient of determination reflects that a number of other variables (not included in this research) may also contribute to explaining financial performance. Categories of financial performance ranged between three and five (regression analysis is more appropriate for continuous data); this can also cause a low R-square.

The table above highlights the importance of Miles and Snow's typology in explaining the financial performance of the firm. Miles and Snow's typology appears to explain, at least partially, all but one of the financial performance indicators. Even though the size of the business also contributes to explaining its

financial results, the appearance of strategy as explanation of the financial results was encouraging.

Similar analysis was done for the Porter's categories and the size of the business. Table V.11 shows which variables were entered in the equation under three different selection methods.

Table V.11. Porter's categories and business size as explanation of financial performance.

	Stepwise	Backward	Forward
Firm's net profit margin compared to the industry's (DF)	P* Adj. R-square = .02178	P TE** Adj. R-square = .03307	P Adj. R-square = .02178
Firm's net profit margin compared to the previous strategy (UN)	No variables entered in the equation	No variables entered in the equation	No variables entered in the equation
Firm's market share compared to the previous strategy (PM)	TE Adj. R-square = .05720	TE Adj. R-square = .05720	TE Adj. R-square = .05720
Firm's net profit margin for the last three years (MC)	No variables entered in the equation	TE Adj. R-square = .01205	No variables entered in the equation
Firm's market share for the last three years (PG)	TE Adj. R-square = .04883	TE Adj. R-square = .04883	TE Adj. R-square = .04883

*P= Porter's typology **TE=Size of the business.

The cells indicate the variables entered in the equation and its adjusted coefficient of determination. A low adjusted coefficient of determination reflects that a number of other variables (not included in this research) may also contribute to explaining financial performance. Categories of financial performance ranged between three and five (regression analysis is more appropriate for continuous data); this can also cause a low R-square.

From the table above, the reader can observe that Porter's typology contributes to explaining the firm's net profit margin compared to the industry's average. Changes in market share compared to market participation under the previous strategy and changes in market share over the last three years appear to be better explained by the size of the business. Changes in net profit margin compared to net profit margin under the previous strategy and net profit margin over the last three years appear not to be explained by Porter's typology or size of the business--except for changes in net profit margin over the last three years evaluated by the *backward* selection method.

In conclusion, it appears that strategies followed by the firms in the sample resemble the strategies proposed by Miles and Snow and Porter. In terms of financial performance, most firms indicated average results for the industry, when compared to results under the previous strategy and over the last three-year period. However, there are more firms that indicated their financial results have improved than firms which claiming their results have worsened.

Interestingly, organizational activities appear to be grouped into three consistent categories: 1) those activities strongly emphasized and related to the day-to-day operation of the business, such as general management, production, marketing and sales, and financial management, 2) those activities that appear to be more related to improving the position of the business in the marketplace, such as product research and development, basic and applied engineering, market research, and personnel (in these activities, average emphasis is placed), and 3) the only activity in which little emphasis is placed: legal issues.

In most cases, the business owner is the person responsible for the firm's strategy and that person usually has a bachelor's degree.

Finally, Miles and Snow's and Porter's categories of strategy appear to contribute to explaining the financial performance of a business. However, the influence of other variables in explaining the variance of a firm's financial results is also recognized.

VI. MILES AND SNOW'S TYPOLOGY IN EACH INDUSTRIAL SECTOR.

This chapter provides an overview of the manner in which Miles and Snow's strategic orientations break down in each sector of activity. The chapter also serves as a point of departure for the following chapters in which financial performance, major organizational activities and general managers' variables are studied. In addition, in order to provide the reader with a general overview of the sectors studied, hypothesis 1 is tested regardless of the industrial sector (see Table V.1).

Table VI.1. Miles and Snow's typology by firm size in the sample.

	MICRO	SMALL	MEDIUM	LARGE	TOTAL
NONE	1	1		1	3
REACTOR	8	10	2	2	22
DEFENDER	17	31	6	6	60
ANALYZER	11	25	4	4	44
PROSPECTOR	10	24	14	7	55
TOTAL	47	91	26	20	184

As can be seen from the above table, only three firms from the entire sample reported not to follow strategies similar to those proposed by Miles and Snow, Thus providing support for hypothesis 1. Additionally, most firms fall into the small-size category (between 16 and 100 employees or annual sales ranging from N\$572,940.50 to N\$5,807,533.25). This pattern is consistent throughout all sectors studied and, in general, provides a clear idea of industry size in San Luis Potosí.

VI.A. The capital goods industry.

This section of the report presents information aimed at providing support for hypothesis 1 in the study of the capital goods industry which proposes that all strategic orientations are present in the industrial sector.

In order to provide the reader with a clearer understanding of the capital goods sector in the city of San Luis Potosí, data was broken down into size categories (see Table VI.A.1).

Table VI.A.1. Miles and Snow's typology by firm size in the capital goods industry.

	MICRO	SMALL	MEDIUM	LARGE	TOTAL
NONE				1	1
REACTOR		1			1
DEFENDER		1			1
ANALYZER	1	2			3
PROSPECTOR		3	1	1	5
TOTAL	1	7	1	2	11

Table VI.A.1. shows that the four strategic orientations (including reactors) proposed by Miles and Snow (1978) are being pursued in the capital goods sector. Furthermore, most the firms are small, having between 16 and 100 employees and sales ranging between N\$572,940.50 and N\$5,807,533.25. One firm did not identify itself with the typology under study, meaning that the firm's general manager considers the business to be pursuing a different strategy.

VI.B. The metal mechanic industry.

All four of Miles and Snow's (1978) typologies are also present in the metal mechanic (see Table VI.B.1).

Table VI.B.1. Miles and Snow's typology by firm size in the metal mechanic industry.

	MICRO	SMALL	MEDIUM	LARGE	TOTAL
REACTOR	7	6	1	2	16
DEFENDER	9	11		3	23
ANALYZER	7	7		3	17
PROSPECTOR	7	6	5	2	20
TOTAL	30	30	6	10	76

Hypothesis 1 is also confirmed for this industry. As Table VI.B.1 shows, most firms in the sample fall into the category of micro (fewer than 15 employees, or sales up to N\$572,940.50) and small-size categories (between 16 and 100 employees, or annual sales ranging from N\$572,940.50 to N\$5,807,533.25). Notice also that in this sector, all firms in the sample identified with one of the strategic orientations (including reactor) as opposed to the capital goods sector in which one firm claimed to follow a different strategy.

VI.C. The foundry industry.

As with the previous two industrial sectors, the foundry industry also shows the presence of the four strategic orientations (see Table VI.C.1).

Table VI.C.1. Miles and Snow's typology by firm size in the foundry industry.

	MICRO	SMALL	MEDIUM	LARGE	TOTAL
NONE		1			1
REACTOR		1			1
DEFENDER	2	2			4
ANALYZER		2		1	3
PROSPECTOR	1	2		2	5
TOTAL	3	8	0	3	14

Hypothesis 1 is also supported by the sample firms in the foundry sector. In addition, Table VI.C.1 reveals that most firms in the industry belong in the small size category (between 16 and 100 employees, or more than N\$572,940.50 but less than N\$5,807,533.25 annual sales).

VI.D. The construction supply industry.

In contrast to the capital goods, metal mechanic and foundry industries, the construction supply industry does not present all four strategic orientations (see Table VI.D.1).

Table VI.D.1. Miles and Snow's typology by firm size in the construction supply industry.

	MICRO	SMALL	MEDIUM	LARGE	TOTAL
NONE	1				1
REACTOR					0
DEFENDER	2	13	4	1	20
ANALYZER		1	1		2
PROSPECTOR	1	5	6	1	13
TOTAL	4	19	11	2	36

None of the firms in the sample indicated displayed characteristics similar to those of Miles and Snow's reactor firms. On the one hand, this has positive

implications since it appears that firms in this industry have a clear strategy to pursue; on the other hand, it means that hypothesis 1 does not have support. As with other sectors, most businesses fall into the small-size category (between 16 and 100 employees, or annual sales ranging from N\$572,940.50 to N\$5,807,533.25).

VI.E. The chemical industry.

Hypothesis 1 finds support in the chemical industry as all four strategies are followed in this sector. Similar to the previous sections, data is presented by size category (see Table VI.E.1).

Table VI.E.1. Miles and Snow's typology by firm size in the chemical industry.

	MICRO	SMALL	MEDIUM	LARGE	TOTAL
REACTOR	1	2	1	0	4
DEFENDER	4	4	2	2	12
ANALYZER	3	13	3	0	19
PROSPECTOR	1	8	2	1	12
TOTAL	9	27	8	3	47

From the table above, the reader can observe that all categories of strategy are present in the chemical industry sector (including reactors). Additionally, it can be observed that most firms in the sector are small size businesses (between 16 and 100 employees, or N\$572,940.50 to N\$5,807,533.25 annual sales).

In conclusion, top managers reported that reactor, defender, analyzer, and prospector strategic orientations are followed in four of the five sectors studied; the construction supply industry, where no firm indicated to be a reactor, was the only exception. This means that hypothesis 1 finds support in the capital goods, metal mechanic, foundry, and chemical industries. In other words, it appears that Miles

and Snow's (1978) typology of strategies is useful as a general framework for the study of the strategies followed by top managers in the manufacturing sector of San Luis Potosí.

VII. FINANCIAL PERFORMANCE UNDER MILES AND SNOW'S TYPOLOGY.

Miles and Snow's (1978) typology of strategy was correlated with financial performance indicators, although establishing causal relationship was not the purpose. The association between categories of strategies and financial performance was aimed at finding identifiable patterns that suggested better financial performance under the prospector, analyzer or defender categories of strategy than under the reactor strategy within each industrial sector studied.

This section reports findings for propositions 2, 3 and 4 for the 184 firms sampled. Chi-square analysis was initially done to identify associations between the categories of strategy and financial performance indicators. The findings are: A firm's net profit margin compared to the industry's average (DF) appears to be significantly associated with the strategies employed (chi-square=15.73948, $p=.0152 < .05$); a firm's net profit margin compared to the net profit margin under the former strategic orientation (UN) appears to be significantly associated with the firm's current strategic orientation (chi-square=25.30805, $p=.0134 < .05$); a firm's market share compared to the market share under the firm's previous strategic orientation (PM) appears to be independent of the firm's current strategy (chi-square=18.17416, $p=.1105 < .05$); a firm's net profit margin over the last three years (MC) appears to be independent of the firm's strategy (chi-square=8.15922, $p=.2267 > .05$); and a firm's market share changes during the last three years (PG) appear to be significantly associated with the firm's current strategy (chi-square=14.63835, $p=.0233$).

Correlation analysis was also done in order to gain some knowledge of the strength of the association among the variables of interest (see Table VII.1).

Table VII.1. Miles and Snow's typology correlated with financial performance indicators.

	Prospectors	Analyzers	Defenders	Reactors
Firm's net profit margin compared to the industry's (DF)	.2733***	-.0368	-.1798**	-.0822
Firm's net profit margin compared to the previous strategy (UN)	-.1051	-.0216	.0076	.1710*
Firm's market share compared to the previous strategy (PM)	-.1540*	-.0353	.1451*	.0598
Firm's net profit margin for the last three years (MC)	.0659	.0855	-.0457	-.1355
Firm's market share for the last three years (PG)	.1805**	.0855	-.2194***	-.0664

"." is printed if a coefficient cannot be computed.

* prob < 0.05 ** prob < 0.01 ***prob < 0.001.

From the above table, the reader can observe several significant relationships. Prospector firms tend to have experienced: 1) higher net profit margins compared to the industry's average ($p=.000$), 2) an increased market participation compared to the firm's previous strategic orientation ($p=.019<.05$), and 3) an increased market share for the last three years ($p=.008<.01$). Defender firms appear to have experienced: 1) lower net profit margins compared to the industry's average ($p=.008<.05$), 2) a decreased market share compared to the previous strategic orientation ($p=.026<.05$), and 3) a decreased market share over the last three years ($p=.001$). Reactor firms appear experienced a decreased net profit margin compared to the firm's previous strategy.

In order to test each hypothesis, t-test statistics were obtained. The findings are presented in the following paragraphs.

Hypothesis 2a proposes that, compared to the industry's average performance, prospector firms will obtain higher net profit margins than reactor firms (DF). The t-test analysis ($F=1.16$, pooled variance $t\text{-value}=5.58$, $p=.006 < .01$) supports this hypothesis.

Hypothesis 2b suggests, that comparing the firm's net profit margin to that under the previous strategic orientation, the current net profit margin will be higher under the prospector strategy than under the reactor strategy (UN). The t-test analysis ($F=1.06$, separate variance $t\text{-value}=2.14$, $p=.0175 < .05$) supports this hypothesis.

Hypothesis 2c proposes that, compared to the firm's market share under the previous strategic orientation, the current market share is higher under the prospector strategy than under the reactor strategy (PM). The t-test analysis ($F=1.87$, pooled variance $t\text{-value}=1.47$, $p=.072 > .05$) does not support this hypothesis.

Hypothesis 2d proposes that prospector firms have increased their net profit margin more than reactor firms over the last three years (MC). T-test analysis ($F=1.11$, pooled variance $t\text{-value}=1.74$, $p=.043 < .05$) supports this hypothesis.

Hypothesis 2e suggests that prospector firms have increased their market share more than reactor firms over the last three years (PG). T-test analysis ($F=1.47$, pooled variance $t\text{-value}=1.83$, $p=.0355 < .05$) supports this hypothesis.

Hypothesis 3a proposes that, compared to the industry's average performance analyzer firms will obtain higher net profit margins than reactor firms (DF). T-test

analysis ($F=1.25$, pooled variance $t\text{-value}=.62$, $p=.2695 > .05$) does not support this hypothesis.

Hypothesis 3b suggests that, compared to the firm's net profit margin under the previous strategic orientation, the current net profit margin will be higher under the analyzer strategy than under the reactor position (UN). T-test analysis ($F=1.80$, separate variance $t\text{-value}=1.73$, $p=.0465 < .05$) supports this hypothesis.

Hypothesis 3c postulates that, compared to the firm's market share under the previous strategic orientation, current market share is higher under the analyzer strategy than under the reactor category (PM). T-test analysis ($F=1.98$, pooled variance $t\text{-value}=.86$, $p=.1995 > .05$) does not support this hypothesis.

Hypothesis 3d proposes that analyzer firms have increased their net profit margin more than reactor firms over the last three years (MC). T-test analysis ($F=1.16$, pooled variance $t\text{-value}=1.87$, $p=.0330 < .05$) suggests that this hypothesis can be sustained.

Hypothesis 3e suggests that analyzer firms have increased their market share more than reactor firms over the last three years (PG). T-test analysis ($F=1.15$, pooled variance $t\text{-value}=1.17$, $p=.1035 > .05$) reveals that no evidence exists to support this hypothesis.

Hypothesis 4a postulates that, compared to the industry's average performance, defender firms will obtain higher net profit margins than reactor firms (DF). T-test analysis ($F=1.16$, pooled variance $t\text{-value}=.13$, $p=.4480 > .05$) does not support this hypothesis.

Hypothesis 4b proposes that, compared to the firm's net profit margin under the previous strategic orientation, current net profit margin will be higher under the

defender strategy than under the reactor strategy (UN). T-test analysis ($F=1.81$, pooled variance $t\text{-value}=1.94$, $p=.0280 < .05$) supports this hypothesis.

Hypothesis 4c postulates that, compared to the firm's market share under the previous strategic orientation, current market share will be higher under the defender strategy than under the reactor category (PM). T-test analysis ($F=1.86$, pooled variance $t\text{-value}=.20$, $p=.4225 > .05$) does not support this hypothesis .

Hypothesis 4d proposes that defender firms have increased their net profit margin more than reactor firms over the last three years (MC). T-test analysis ($F=1.48$, pooled variance $t\text{-value}=1.25$, $p=.1085 > .05$) does not support this hypothesis.

Hypothesis 4e proposes that defender firms have increased their market share more than reactor firms over the last three years (PG). T-test analysis ($F=1.44$, pooled variance $t\text{-value}=.56$, $p=.2895 > .05$) does not support this hypothesis .

As a result of this analysis, evidence exists to conclude that several significant associations exists between the financial performance indicators and the strategic orientations proposed by Miles and Snow. Specifically prospectors have obtained favorable results in net profit margins compared to the industry's, market share compared to the firm's previous strategy, and market share over the last three years. Interestingly, defender firms have experienced the opposite effect for those indicators. Prospectors outperform reactors in 4 of the 5 financial indicators. When compared to reactors, analyzers obtained better financial results in 3 of the 5 financial indicators, while defenders obtained better results in only 1 indicator. This means that the prospector strategy provides more consistent and better financial results than those of other strategies.

VII.A. The capital goods industry.

Section VII.A tests and reports findings for propositions 2, 3 and 4 for the capital goods industry. Chi-square analysis was done first to identify significant associations between strategy financial performance indicators under study. The findings are: A firm's net profit margin compared to the industry's average (DF) appears to be independent of the strategy selected (chi-square=12.22222, $p=.1416 > .05$); a firm's net profit margin compared to the net profit under the previous strategy (UN) appears to be independent of the firm's current strategy (chi-square=5.81429, $p=.2135 > .05$); a firm's market share compared to the market share under the previous strategy (PM) appears to be independent of the firm's current strategy (chi-square=6.60000, $p=.5803 > .05$); a firm's net profit margin over the last three years (MC) appears to be independent of the firm's strategy (chi-square=6.57143, $p=.3623 > .05$); and a firm's market share changes over the last three years (PG) appear to be associated with the strategies employed (chi-square=14.85714, $p=.0214 < .05$).

Correlation analysis was also done in order to gain knowledge of the strength of the association among the variables of interest (see Table VII.A.1).

Table VII.A.1. Miles and Snow's typology correlated with financial performance indicators in the capital goods industry.

	Prospectors	Analyzers	Defenders	Reactors
Firm's net profit margin compared to the industry's (DF)	.4472	.0000	.	.0000
Firm's net profit margin compared to the previous strategy (UN)	-.2182	.4286	.	.2182
Firm's market share compared to the previous strategy (PM)	.0000	.3450	.	.0000
Firm's net profit margin for the last three years (MC)	.5571*	-.2837	.	-.5571*
Firm's market share for the last three years (PG)	-.1857	.1216	.	-.5571*

"." is printed if a coefficient cannot be computed.

* prob < 0.05.

The above table shows that prospector firms have increased ($p=.047<.05$) their net profit margin over the last three years (MC), while the same financial performance indicator has decreased for reactor firms ($p=.047<.05$). Also, the reactor's market share over the last three years (PG) has tended to decrease ($p=.047<.05$). These findings suggest that in the capital goods industry, prospector firms have obtained better net profit margins and market participation than reactors. T-test analysis was not appropriate because in the capital goods industry only one firm was classified in the reactor category. However, based on the correlation analysis, it can be suggested that the prospector strategic orientation has a statistically significant positive correlation with net profit margin changes over the last three years (MC), while the reactor orientation has a negative influence on net profit margin changes. Furthermore, reactor firms seem to have decreased their market share during this time. These findings have interesting implications.

Knowledge has been gained about the impact of the prospector strategic orientation in profit generation in the capital goods industry sector in contrast to the reactor position which has resulted in market share and net profit margin decreases over the last three years.

VII.B. The metal mechanic industry.

Section VII.B tests and reports findings for propositions 2, 3 and 4 for the metal mechanic industry. Chi-square analysis was initially done to identify associations between the categories of strategy and financial performance indicators. The findings are: a firm's net profit margin compared to the industry's average (DF) seems to be independent of the strategies employed (chi-square=7.11280, $p=.3105 > .05$); a firm's net profit margin compared to the net profit margin under the former strategic orientation (UN) appears to be independent of the firm's current strategic orientation (chi-square=20.26624, $p=.0622 > .05$); a firm's market share compared to the market share under the firm's previous strategic orientation (PM) appears to be significantly associated with firm's current strategy (chi-square=24.19947, $p=.0191 < .05$); a firm's net profit margin over the last three years (MC) appears to be independent of the firm's strategy (chi-square=6.69092, $p=.3504 > .05$); and a firm's market share changes during the last three years (chi-square=9.53345, $p=.1457$) appear to be independent of the firm's strategic orientation.

Correlation analysis was also done in order to gain some knowledge of the strength of the association among the variables of interest (see Table VII.B.1).

Table VII.B.1. Miles and Snow's typology correlated with financial performance indicators in the metal mechanic industry.

	Prospectors	Analyzers	Defenders	Reactors
Firm's net profit margin compared to the industry's (DF)	.1987*	-.0759	-.1107	-.0140
Firm's net profit margin compared to the previous strategy (UN)	-.3091**	.0619	.0567	.2080*
Firm's market share compared to the previous strategy (PM)	-.3390***	.0885	.1970*	.0557
Firm's net profit margin for the last three years (MC)	.0112	.1902	-.0278	-.1709
Firm's market share for the last three years (PG)	.2056*	.0724	-.2481*	-.0152

"." is printed if a coefficient cannot be computed.

* prob < 0.05 ** prob < 0.01.

From the above table, the reader can observe several significant relationships. Prospector firms tend to have experienced: 1) higher net profit margins compared to the industry's average ($p=.044 < .05$), 2) an increased net profit margin compared to the net profit margin under the firm's previous strategic orientation ($p.003 < .01$), 3) an increased market participation compared to the firm's previous strategic orientation ($p=.001$), and 4) an increased market share for the last three years ($p=.038 < .05$). Defender firms seem to have decreased their market share compared both to the previous strategic orientation ($p=.0145 < .05$) and the last three years ($p=.016 < .05$). Reactor firms seem to have decreased their net profit margin compared to the firm's previous strategy ($p.037 < .05$).

In order to test each, t-test statistics were obtained. The findings are presented in the following paragraphs.

Hypothesis 2a proposes that, compared to the industry's average performance, prospector firms will obtain higher net profit margins than reactor firms (DF). The t-test analysis ($F=1.09$, pooled variance $t\text{-value}=.77$, $p=.224 > .05$) does not support for this hypotheses .

Hypothesis 2b suggests, that comparing the firm's net profit margin to that under the previous strategic orientation, the current net profit margin will be higher under the prospector strategy than under the reactor strategy (UN). The t-test analysis ($F=1.14$, separate variance $t\text{-value}=2.33$, $p=.014 < .05$) supports this hypothesis.

Hypothesis 2c proposes that, compared to the firm's market share under the previous strategic orientation, the current market share is higher under the prospector strategy than under the reactor strategy (PM). The t-test analysis ($F=2.10$, pooled variance $t\text{-value}=1.77$, $p=.044 < .05$) provides evidence to suggest that this hypothesis can be sustained.

Hypothesis 2d proposes that prospector firms have increased their net profit margin more than reactor firms over the last three years (MC). T-test analysis ($F=1.24$, separate variance $t\text{-value}=1.07$, $p=.148 > .05$) does not support this hypothesis.

Hypothesis 2e suggests that prospector firms have increased their market share more than reactor firms over the last three years (PG). T-test analysis ($F=1.06$, separate variance $t\text{-value}=1.04$, $p=.155 > .05$) does not seem support this hypothesis.

Hypothesis 3a proposes that, compared to the industry's average performance analyzer firms will obtain higher net profit margins than reactor firms (DF). T-test

analysis ($F=1.56$, separate variance t -value $=.36$, $p=.361 > .05$) does not support this hypothesis.

Hypothesis 3b suggests that, compared to the firm's net profit margin under the previous strategic orientation, the current net profit margin will be higher under the analyzer strategy than under the reactor position (UN). T-test analysis ($F=2.60$, pooled variance t -value $=.87$, $p=.195 > .05$) does not support this hypothesis.

Hypothesis 3c postulates that, compared to the firm's market share under the previous strategic orientation, current market share is higher under the analyzer strategy than under the reactor category (PM). T-test analysis ($F=2.19$, pooled variance t -value $=.32$, $p=.377 > .05$) does not support this hypothesis.

Hypothesis 3d proposes that analyzer firms have increased their net profit margin more than reactor firms over the last three years (MC). T-test analysis ($F=1.34$, separate variance t -value $=1.90$, $p=.035 < .05$) suggests that this hypothesis can be sustained.

Hypothesis 3e suggests that analyzer firms have increased their market share more than reactor firms over the last three years (PG). T-test analysis ($F=1.04$, separate variance t -value $=.69$, $p=.249 > .05$) reveals that no evidence exists to support this hypothesis.

Hypothesis 4a postulates that, compared to the industry's average performance, defender firms will obtain higher net profit margins than reactor firms (DF). T-test analysis ($F=1.63$, pooled variance t -value $=.32$, $p=.374 > .05$) does not support this hypothesis.

Hypothesis 4b proposes that, compared to the firm's net profit margin under the previous strategic orientation, current net profit margin will be higher under the

defender strategy than under the reactor strategy (UN). T-test analysis ($F=2.04$, pooled variance $t\text{-value}=.64$, $p=.263$) does not support this hypothesis.

Hypothesis 4c postulates that, compared to the firm's market share under the previous strategic orientation, current market share will be higher under the defender strategy than under the reactor category (PM). T-test ($F=5.05$, pooled variance $t\text{-value}=1.04$, $p=.155 > .05$) analysis does not support this hypothesis .

Hypothesis 4d proposes that defender firms have increased their net profit margin more than reactor firms over the last three years (MC). T-test analysis ($F=1.87$, pooled variance $t\text{-value}=.62$, $p=.272 > .05$) does not support this hypothesis.

Hypothesis 4e proposes that defender firms have increased their market share more than reactor firms over the last three years (PG). T-test analysis ($F=2.75$, pooled variance $t\text{-value}=1.47$, $p=.077 > .05$) does not support for hypothesis .

As a result of this analysis, evidence exists to conclude that prospector firms tend to increase their net profit margins in relation to the industry's average. Compared to the results obtained from the previous strategy, prospectors have also improved their financial performance. Additionally, prospector firms have increased their market participation over the last three years. Analyzer firms do not show clear associations with financial performance; however, these firms appear have improved their market share, compared to their previous strategic orientation, more that reactor firms. Defender firms seem to have decreased their market share compared to their former strategy and over the last three years. Reactor firms have worsened financial performance compared to that under their previous strategy.

VII.C. The foundry industry.

This section reports findings related to financial performance indicators for companies in the foundry industry under each category of strategy proposed by Miles and Snow (1978). Chi-square analysis was first obtained to identify significant associations between the categories of strategy and the financial performance indicators under study. The findings are: a firm's net profit margin compared to the industry's (DF) appears to be independent of firm's strategic orientation (chi-square=9.17000, $p=.3282 > .05$); a firm's net profit margin compared to the net profit margin under the previous strategic orientation (UN) appears to be independent of the current strategic orientation (chi-square=6.08111, $p=.7318 > .05$); a firm's market share compared to the market share under the former strategy (PM) appear to be independent of the current strategic orientation (chi-square=6.50000, $p=.8888 > .05$); a firm's net profit margin changes over the last three years (MC) appear to be independent of the firm's current strategy (chi-square=7.07778, $p=.3137 > .05$); and a firm's market share over the last three years (PG) appears to be independent of the firm's strategic (chi-square=3.17778, $p=.7862 > .05$).

Correlation analysis was also done in order to understand how categories of strategy are related to financial performance (see Table VII.C.1)

Table VII.C.1. Miles and Snow's typology correlated with financial performance indicators in the foundry industry.

	Prospectors	Analyzers	Defenders	Reactors
Firm's net profit margin compared to the industry's (DF)	.6618**	-.5181	-.5052*	-.0833
Firm's net profit margin compared to the previous strategy (UN)	.0273	.1419	-.2016	.0748
Firm's market share compared to the previous strategy (PM)	-.0449	-.2335	.3316	-.1231
Firm's net profit margin for the last three years (MC)	.1581	-.1278	-.0833	.0577
Firm's market share for the last three years (PG)	.2038	-.2521	-.1074	.2126

* prob < 0.05 ** prob < 0.01.

The preceding table indicates that prospector firms tend to obtain above-average net profit margins compared to industry performance ($p.007 < .01$), while defenders tend to obtain below-average net profit margins ($p.039 < .05$). T-test analysis was not appropriate because only one case could be classified into the reactor group.

From the discussion presented above, it can be concluded that most financial performance indicators are independent of the firm's strategic orientation. However, it is important to observe that firms pursuing a prospector orientation are more likely to obtain above-average net profit margins, while defender firms are more likely to perform below average in terms of net profit margin compared to the firm's average performance.

VII.D. The construction supply industry.

Section VII.D tests and reports findings for propositions 2, 3 and 4 for the construction supply industry. Chi-square analysis was initially done to identify significant associations between the categories of strategy and the financial performance indicator under study. The findings are: a firm's net profit margin compared to the industry's average (DF) appears to be strongly associated with strategy (chi-square=15.83090, $p=.0147<.05$); a firm's net profit margin compared to the net profit margin under the previous strategic orientation (UN) does not appear to be associated with the firm's current strategic orientation (chi-square=7.01748, $p=.3192>.05$); a firm's market share compared to the market share under the former strategic orientation (PM) does not appear to be associated with the firm's current strategy (chi-square=6.96568, $p=.6407$); a firm's net profit margin compared to the market share under the firm's previous strategic orientation (MC) appears to be independent of the current strategic orientation of the firm (chi-square=10.73473, $p=.0969$); and a firm's market share over the last three years (PG) appears to be associated significantly with firm's strategic orientation (chi-square=18.93544, $p=.0043$).

Correlation analysis was done in order to gain some knowledge of the strength of the association among the variables of interest (see Table VII.D.1).

VII.D.1. Miles and Snow's typology correlated with financial performance indicators in the construction supply industry.

	Prospectors	Analyzers	Defenders	Reactors
Firm's net profit margin compared to the industry's (DF)	.2205	.2589	-.4433	.
Firm's net profit margin compared to the previous strategy (UN)	-.0330	-.2896*	.1277	.
Firm's market share compared to the previous strategy (PM)	-.2863*	-.1072	.3063*	.
Firm's net profit margin for the last three years (MC)	.1286	.3986**	-.3026***	.
Firm's market share for the last three years (PG)	.4305**	.3986**	-.5945***	.

"." is printed if a coefficient cannot be computed.

* prob < 0.05 **prob < 0.01 ***prob < 0.001.

As the reader can observe from the above table, prospector firms in the construction supply industry appear to have increased: 1) market participation compared to that under the previous strategic orientation ($p=.045 < .05$), and 2) market share over last three years ($.004 < .01$). Analyzer firms appear to have increased: 1) net profit margin compared to those under the previous strategy ($p=.043 < .05$), 2) net profit margin over the last three years ($p=.008 < .01$) and 3) market share over the last three years ($p=.008 < .01$). Defender firms in this industry seem to have experienced: 1) below-average net profit margins ($p=.003 < .01$), 2) decreased market participation compared to that under their former strategic orientation ($p=.035 < .05$), 3) decreased net profit margins over

the last three years ($p=.036<.05$), and 4) decreased market share over the last three years ($p=.000<.001$).

In this industrial sector, no firm was classified as a reactor, thus group comparisons among the prospector, analyzer and defender categories and the reactor position could not be obtained.

In conclusion, evidence exists to suggest that prospector and analyzer firms obtain better financial results than defender firms in the construction supply industry. Although comparisons with the reactor category were not possible in this industry, it is important to know that two categories of strategic orientation--prospector and analyzer--provide better financial results than does the defender strategy.

VII.E. The chemical industry.

Section VI.E tests and reports findings for propositions 2, 3 and 4 for the chemical industry. Chi-square was first obtained in order to identify significant associations between the categories of strategy and the financial performance indicators of interest. The findings are: A firm's net profit margin compared to the industry's average (DF) appears to be independent of the firm's strategic category ($\text{chi-square}=6.90379$, $p=.3298<.05$); a firm's net profit margin compared to the net profit margin under the firm's previous strategy (UN) appears to be independent of the firm's current strategic category ($\text{chi-square}=9.19823$, $p=.4192<.05$); a firm's market share compared to the market share under the previous strategic orientation (PM) appears to be independent of the firm's current strategic category (15.57852 , $p=.0762<.05$); a firm's net profit margin over the last three year (MC) appears to be independent of the firm's current strategy (2.83136 ,

$p = .8297 < .05$); and a firm's market share over the last three years (PG) appears to be independent of the firm's strategic orientation (6.17489, $p = .4039$).

Correlation analysis was done in order to gain some knowledge of the strength of the association among the variables of interest (see Table VII.E.1).

VII.E.1 Miles and Snow's typology correlated with financial performance indicators in the chemical industry.

	Prospectors	Analyzers	Defenders	Reactors
Firm's net profit margin compared to the industry's (DF)	.3002*	-.1754	-.0016	-.1580
Firm's net profit margin compared to the previous strategy (UN)	.1463	-.1033	-.0993	.1082
Firm's market share compared to the previous strategy (PM)	.1840	-.0868	-.1987	.1756
Firm's net profit margin for the last three years (MC)	.0580	-.1708	.1433	-.0142
Firm's market share for the last three years (PG)	.1021	.0217	.0305	-.2452*

* prob < 0.05 .

Although correlation analysis does not show many significant relationships, two significant correlations are revealing. Prospector firms tend to generate above-average net profit margins compared to the industry's performance ($p = .020 < .05$), while reactors appear to have decreased market participation during the last three years ($p = .048 < .05$). This implies that a prospector strategic orientation is likely to produce better results than a reactor.

T-test analysis was performed with the purpose of testing the research hypotheses. The findings are reported in the following paragraphs.

Hypothesis 2a proposes that, compared to the industry's average performance, prospector firms will obtain higher net profit margins than reactor firms (DF). T-test analysis ($F=1.06$, separate variance $t\text{-value}=2.29$, $p=.034 < .05$) supports this hypothesis.

Hypothesis 2b postulates that, compared to the firm's net profit margin under the previous strategic orientation, the current net profit margins will be higher under the prospector strategy than under the reactor category (UN). T-test analysis ($F=1.06$, separate variance $t\text{-value}=.15$, $p=.444 > .05$) does not support this hypothesis.

Hypothesis 2c proposes that, compared to the firm's market share under the previous strategic orientation, the current market share will be higher under the prospector strategy than under the reactor position (PM). T-test analysis ($F=3.46$, pooled variance $t\text{-value}=.45$, $p=.329 > .05$) does not support this hypothesis.

Hypothesis 2d proposes that prospector firms have increased their net profit margins more than reactor firms over the last three years (MC). T-test analysis ($F=1.70$, pooled variance $t\text{-value}=.23$, $p=.410$) does not sustain this hypothesis.

Hypothesis 2e suggests that prospector firms have increased their market share more than reactor firms over the last three years (PG). T-test analysis ($F=1.06$, separate variance $t\text{-value}=2.29$, $p=.034 < .05$) suggests that this hypothesis can be sustained.

Hypothesis 3a proposes that, compared to the industry's average performance, analyzer firms will obtain higher net profit margins than reactor firms (DF). T-test analysis ($F=1.54$, pooled variance $t\text{-value}=.59$, $p=.280 > .05$) does not support this hypothesis.

Hypothesis 3b postulates that, compared to the firm's net profit margin under the previous strategic orientation, the current net profit margin will be higher under the analyzer strategy than under the reactor orientation (UN). T-test analysis ($F=1.96$, pooled variance $t\text{-value}=.95$, $p=.176 > .05$) does not support this hypothesis.

Hypothesis 3c suggests that, compared to the firm's market share under the previous strategic orientation, the current market share will be higher under the analyzer strategy than under the reactor category (PM). T-test analysis ($F=2.70$, pooled variance $t\text{-value}=1.22$, $p=.119 > .05$) does not support this hypothesis.

Hypothesis 3d suggests that analyzer firms have increased their net profit margin more than reactor firms over the last three years (MC). T-test analysis ($F=1.45$, separate variance $t\text{-value}=.28$, $p=.390$) does not sustain this hypothesis.

Hypothesis 3e suggests that analyzer firms have increased their market share more than reactor firms over the last three years (PG). T-test analysis ($F=2.25$, pooled variance $t\text{-value}=1.43$, $p=.084 > .05$) does not support this hypothesis.

Hypothesis 4a proposes that, compared to the industry's average performance, defender firms will obtain higher net profit margins than reactor firms (DF). T-test analysis ($F=2.52$, pooled variance $t\text{-value}=.78$, $p=.224 > .05$) does not sustain this hypothesis.

Hypothesis 4b suggests that, compared to the firm's net profit margin under the previous strategic orientation, the current net profit margin will be higher under the defender strategy than under the reactor category (UN). T-test analysis ($F=1.51$, separate variance $t\text{-value}=.79$, $p=.236$) does not support this hypothesis.

Hypothesis 4c postulates that, compared to the firm's market share under the previous strategic orientation, the current market share will be higher under the defender strategy than under the reactor position (PM). T-test analysis ($F=1.78$, separate variance $t\text{-value}=1.12$, $p=.162 > .05$) does not sustain this hypothesis.

Hypothesis 4d suggests that defender firms have increased their net profit margin more than reactor firms over the last three years (MC). T-test analysis ($F=1.06$, separate variance $t\text{-value}=.57$, $p=.295 > .05$) does not support this hypothesis.

Hypothesis 4e proposes that defender firms have increased their market share more than reactor firms over the last three years (PG). T-test analysis ($F=2.42$, pooled variance $t\text{-value}=1.39$, $p=.094 > .05$) does not support this hypothesis.

In conclusion, it can be noted that some evidence was found to suggest that prospector firms have generated net profit margins above the industry's average. Also, evidence was found to suggest that market share for prospectors over the last three years has increased more than reactors' over the same time period. Finally, correlation analysis suggests that reactor firms have reduced their market share during the last three years.

VIII. MAIN ORGANIZATIONAL ACTIVITIES UNDER EACH STRATEGIC ORIENTATION.

In this chapter, associations between ten organizational activities and each strategic orientation proposed by Miles and Snow (1978) are sought, and findings are reported. Expected validity of the strategy type was though by correlating them with organizational activities. For example, Table VIII.1 indicates that prospectors emphasize marketing, engineering and product research and development activities. These findings are consistent with Snow and Hrebiniak (1980) who found that prospectors' strengths are general management, product research and development, market research, and basic engineering. Also, if managers emphasize activities which support their self-reported strategies, this helps to validate the strategy implemented. This section reports associations between the categories of strategy and the main organizational activities performed in the firm, hypotheses were tested for the whole database. (see Table VIII.1).

Table VIII.1. Miles and Snow's typology correlated with main organizational activities.

	Prospectors	Analyzers	Defenders	Reactors
General management (FAG)	.0228	-.0484	-.0175	.0382
Financial management (FAF)	-.0562	-.0524	.0160	.1339*
Marketing/sales (FMV)	-.1307*	-.0184	.0718	.0956
Market research (FIM)	-.2299***	.0169	.1655*	.0670
Product research and development (FIDP)	-.1980**	-.0042	.1383*	.0855
Engineering, basic and applied (FIBA)	-.1942**	.0133	.1645*	-.0014
Production (FP)	.0257	-.0644	.0112	.0087
Distribution (FD)	.0242	-.0294	-.0520	.0678
Legal affairs (FAL)	-.0795	.0704	.0289	.0055
Personnel (FRH)	-.0730	-.0888	.0602	.1243

* prob < 0.05 ** prob < 0.01.

Hypothesis 5a proposes that prospector's major organizational activities will be: general management, product research and development, market research, and basic and applied engineering. Correlation analysis shows that prospectors appear to emphasize marketing and sales, market research, product research and development, and basic and applied engineering. These findings are consistent to this strategy.

Hypothesis 5b postulates that analyzer's major organizational activities will be: general management, production, basic and applied engineering, and marketing and sales. Correlation analysis does not show associations significant enough to support this hypothesis.

Hypothesis 5c proposes that defender's major organizational activities will be: general management, financial management, production, and basic and applied engineering. Correlation analysis shows that defenders do not emphasize market research, product research and development, and basic and applied engineering.

Hypothesis 5d proposes that reactor firms will not show statistically significant organizational activities. Since only one significant correlation was found, hypothesis 5d is supported. Moreover, a significant correlation ($p < .05$) was found to suggest that reactors tend not to emphasize financial management.

Some evidence exists to suggest that prospector firms are more likely to emphasize marketing and sales, market research, product research and development, and basic and applied engineering; as opposed to defenders which do not emphasize market research, product research and development, and basic and applied engineering.

VIII.A. The capital goods industry.

Correlation analysis was utilized to measure the strength and direction between the categories of strategy and the organizational activities under study (see Table VIII.A.1).

Table VIII.A.1. Miles and Snow's typology correlated with main organizational activities in the capital goods industry.

	Prospectors	Analyzer s	Defenders	Reactors
General management (FAG)	-.0913	-.4000	.	.6455
Financial management (FAF)	-.4714	.6455	.	-.1667
Marketing/sales (FMV)	-.0913	-.4000	.	.6455
Market research (FIM)	.0913	-.3000	.	.2582
Product research and development (FIDP)	-.1667	-.0913	.	.3536
Engineering, basic and applied (FIBA)	.1667	-.5477	.	.4714
Production (FP)	.4167	-.7303*	.	.3536
Distribution (FD)	.3536	-.2582	.	-.1667
Legal affairs (FAL)	-.2582	.3536	.	-.0913
Personnel (FRH)	-.7100*	.3536	.	.5477

* prob < 0.05.

"." is printed if a coefficient cannot be printed.

Hypothesis 5a proposes that prospector's major organizational activities will be: general management, product research and development, market research, and basic and applied engineering; however correlation analysis does not support this hypothesis. Nevertheless, an unexpected association showed significance: evidence was found to suggest that prospector firms make emphasis on personnel activities.

Hypothesis 5b suggests that analyzers' major organizational activities will be: general management, production, basic and applied engineering, and marketing and sales. However, the only significant association found was with production, thereby providing modest support for hypothesis 5b. Financial activities show an indirect and limited relationship with the analyzer orientation ($p=.059$), yet analyzers appear not to emphasize financial activities--a result that was not hypothesized.

Hypothesis 5c postulates that defender's major organizational activities will be: general management, financial management, production, and basic and applied engineering. Unfortunately a correlation coefficient could not be computed because only one firm classified in this category.

Hypothesis 5d suggests that reactor firms will not show statistically significant organizational activities. According to what was hypothesized, no distinctive organizational activities showed significant associations. Two observed significant levels ($p>.059$) are slightly the above accepted significance level ($p=.05$). Interestingly, reactors do not appear to emphasize general management ($p=.059$) or marketing and sales activities ($p=.059$). The lack of emphasis on general management can be interpreted as failure to control the basic functional areas of the firm, marketing being one of them.

VIII.B. The metal mechanic industry.

This chapter reports associations between the categories of strategy and the major organizational activities under study (see Table VIII.B.1).

Table VIII.B.1. Miles and Snow's typology correlated with main organizational activities in the metal mechanic industry.

	Prospectors	Analyzers	Defenders	Reactors
General management (FAG)	.0351	.0303	-.0395	-.0250
Financial management (FAF)	-.0426	.0058	-.0660	.1123
Marketing/sales (FMV)	-.2617*	-.0145	.1526	.1295
Market research (FIM)	-.3193*	.1227	.1358	.0729
Product research and development (FIDP)	-.3753*	.0684	.1227	.2020*
Engineering, basic and applied (FIBA)	-.0595	-.0609	.1262	-.0131
Production (FP)	.1138	-.1110	.0909	-.1110
Distribution (FD)	-.0435	.0854	-.0731	.0415
Legal affairs (FAL)	-.1277	.0918	.0000	.0459
Personnel (FRH)	-.2786**	.0907	.1508	.0447

* prob < 0.05 ** prob < 0.01.

Hypothesis 5a. proposes that prospector's major organizational activities will be: general management, product research and development, market research, and basic and applied engineering. As expected, prospector firms emphasize market research ($p < .05$) and product research and development ($p < .01$). They do not emphasize basic and applied engineering or general management. Marketing and sales showed a significant association ($p < .05$) with the prospector strategic orientation. This finding appears consistent with the two organizational activities which also showed significant correlations.

Hypothesis 5b postulates that analyzer's major organizational activities will be: general management, production, basic and applied engineering, and marketing and sales. Correlation analysis does not show associations significant enough to support this hypothesis.

Hypothesis 5c proposes that defender's major organizational activities will be: general management, financial management, production, and basic and applied engineering. Correlation analysis does not show significant relationships between these organizational activities and the categories of strategy under study.

Hypothesis 5d proposes that reactor firms will not show statistically significant organizational activities. Since only one significant correlation was found, hypothesis 5d is supported. Moreover, a significant correlation ($p < .05$) was found to suggest that reactors tend not to emphasize product research and development, as opposed to prospectors which do tend to emphasize this area ($p < .01$).

Although few significant correlations were found, some evidence exists to suggest that prospector firms are more likely to emphasize the following organizational activities: marketing and sales, market research, and product research and development.

VIII.C. The foundry industry.

This chapter reports the organizational activities that characterize each strategic orientation under study (see Table VIII.C.1).

Table VIII.C.1. Miles and Snow's typology correlated with main organizational activities in the foundry industry.

	Prospectors	Analyzers	Defenders	Reactors
General management (FAG)	-.0667	.7454*	-.4472	-.2928
Financial management (FAF)	-.6000	.7454*	-.4472	.4880
Marketing/sales (FMV)	-.2067	.2774	.4623	.0605
Market research (FIM)	-.1240	-.0925	.2774	-.0605
Product research and development (FIDP)	.2981	.0000	.0000	-.4364
Engineering, basic and applied (FIBA)	-.6956*	-.1037	.7259*	.2037
Production (FP)	-.2928	.6547*	-.2182	-.1429
Distribution (FD)	-.3246	.3111	-.1037	.2037
Legal affairs (FAL)	-.8563*	.5222	.5222	-.1140
Personnel (FRH)	.2928	.302	-.6547*	.1429

*prob < .05.

Hypothesis 5a suggests that prospectors' major organizational activities will be: general management, product research and development, market research, and basic and applied engineering. Only modest support is found for this hypothesis. In the foundry industry, prospector firms appear to emphasize basic and applied engineering ($p < .05$) and legal affairs ($p < .05$), an organizational activity not expected to be related to prospector firms.

Hypothesis 5b suggests that analyzers' major organizational activities will be: general management, production, basic and applied engineering, and marketing and sales. Contrary to what was hypothesized, correlation analysis shows that analyzer firms do not appear to emphasize general management or production ($p < .05$). No support was found to suggest that analyzers emphasize make emphasis basic and applied engineering or marketing and sales. A significant correlation ($p < .05$) was found to propose that analyzers do not emphasize financial management.

Hypothesis 5c postulates that defender's organizational activities will be: general management, financial management, production, and basic and applied engineering. Contrary to what was hypothesized, correlation analysis ($p < .05$) shows that defenders do not emphasize basic and applied engineering. Defenders do ($p < .05$), however, emphasize personnel activities, an association not expected to occur.

Hypothesis 5d suggest that reactor firms will not show statistically significant organizational activities, and in fact, correlation analysis suggests this to be true ($p > .05$).

Although no strong support was found for the hypotheses under analysis, an interesting comparison can be made. Prospector firms tend to emphasize basic and applied engineering, while defender firms tend not to emphasize make that activity.

VIII.D. The construction supply industry.

This section reports findings related to the organizational activities that characterize the strategic categories in the construction supply industry (see Table VIII.D.1).

Table VIII.D.1. Miles and Snow's typology correlated with main organizational activities in the construction supply industry.

	Prospectors	Analyzers	Defenders	Reactors
General management (FAG)	-.1820	.3223*	-.0026	.
Financial management (FAF)	.0461	-.1920	.0895	.
Marketing/sales (FMV)	-.0811	.1161	-.0025	.
Market research (FIM)	-.4342*	.2037	.3826*	.
Product research and development (FIDP)	-.3331*	.2277	.2483	.
Engineering, basic and applied (FIBA)	-.3584*	-.1148	.3343*	.
Production (FP)	.0035	-.1165	-.0407	.
Distribution (FD)	-.0159	-.0497	.0052	.
Legal affairs (FAL)	-.0586	-.0051	.1848	.
Personnel (FRH)	.0815	-.0754	-.0263	.

* prob < .05.

"." is printed if a coefficient cannot be computed.

Hypothesis 5a suggests that prospectors' major organizational activities will be: general management, product research and development, market research, and basic and applied engineering. Correlation analysis shows expected associations with market research ($p < .05$), product research and development ($p < .05$) and basic and applied engineering ($p < .05$). Only general management failed to show a significant relationship ($p > .05$).

Hypothesis 5b proposes that analyzers' major organizational activities will be: general management, production, basic and applied engineering, and marketing and sales. Only one of the expected associations--general management--was significant ($p < .05$). Interestingly, correlation analysis shows that analyzer firms tend not place much emphasis on general management.

Hypothesis 5c postulates that defender's major organizational activities will be: general management, financial management, production, and basic and applied engineering. No significant association ($p > .05$) was found for general or financial management. Contrary to what was hypothesized, defender firms do not make emphasis on basic and applied engineering ($p < .05$). Market research became significant at a .05 level, meaning that defenders tend not to emphasize on market research.

Hypothesis 5d suggests that reactor firms will not show statistically significant distinctive organizational activities. Correlation analysis was not possible to calculate because no firm within this industry could be classified into the reactor category; therefore, conclusions regarding organizational activities cannot be derived.

The following conclusions result from the above discussion. Prospector firms tend to emphasize market research while defenders tend not to emphasize this organizational activity. Similarly, prospectors tend to emphasize on basic and applied engineering while defenders demonstrate the opposite relationship.

VIII.E. The chemical industry.

This section reports significant associations between organizational activities and the prospector, analyzer, defender and reactor categories of strategy (see Table VIII.E.1).

Table VIII.E.1. Miles and Snow's typology correlated with main organizational activities in the chemical industry.

	Prospectors	Analyzers	Defenders	Reactors
General management (FAG)	.1801	-.1530	-.1920	.2876*
Financial management (FAF)	-.0065	-.1664	.0947	.1547
Marketing/sales (FMV)	.0475	-.0289	-.0700	.0859
Market research (FIM)	-.1787	.1737	-.1787	.2532*
Product research and development (FIDP)	-.0273	-.0095	-.0831	.1893
Engineering, basic and applied (FIBA)	-.2764*	.2797*	-.1599	.1898
Production (FP)	-.1002	-.0172	.0517	.1060
Distribution (FD)	.2834*	-.1788	-.1307	.0757
Legal affairs (FAL)	.0544	.0892	-.2866*	.2060
Personnel (FRH)	.0182	-.0377	.2665*	.4544**

* $p < .05$ ** $p < .01$.

Hypothesis 5a suggests that prospectors' major organizational activities will be: general management, product research and development, market research, and basic and applied engineering. Correlation analysis reveals that prospector firms in the chemical industry tend to emphasize basic and applied engineering ($p < .05$). Other expected correlations were not significant ($p > .05$). Proectors in the chemical industry tend not to make emphasize on distribution activities.

Hypothesis 5b proposes that analyzers' organizational activities will be: general management, production, basic and applied engineering, and marketing and sales. Correlation analysis reveals that analyzer firms tend not to emphasize basic and applied engineering. Other expected associations proved insignificant.

Hypothesis 5c proposes that defenders' major organizational activities will be: general management, financial management, production, and basic and applied

engineering. None of the expected associations prove significant at a .05 level. Interestingly, defender firms tend to emphasize on legal affairs and personnel.

Hypothesis 5d postulates that reactor firms will not show statistically significant organizational activities. However, three organizational activities did show significant associations: general management, market research, and personnel. Reactor firms tend not to emphasize these three activities, thus making for an interesting finding. These firms do not control fundamental activities such as general management, nor they scan market information. Finally, reactor firms do not emphasize the personnel function.

From the discussion above, evidence is found to suggest that prospector firms tend to emphasize basic and applied engineering while analyzers tend not to emphasize on this activity. Also, defender firms tend to emphasize on personnel activities while reactors do not.

IX. GENERAL MANAGER'S STRATEGY IMPLEMENTATION UNDER MILES AND SNOW'S TYPOLOGY.

This chapter seeks to identify the association between the strategic orientation implemented and the category of the person responsible for its implementation i.e., the owner of the business or a professional general manager. Specifically, proposition 6 states: The strategic orientation pursued differs depending on whether the person responsible for its implementation is the business owner or a professional general manager. This proposition has been operationalized through the following hypotheses:

6a. The professional general manager will implement a prospector strategy, while the business owner will implement a defender strategy.

6b. The professional general manager will implement an analyzer strategy, while the business owner will implement a defender strategy.

Chi-square and t-test statistics were calculated in order to define whether or not the categories of strategy are independent of the person finally responsible for implementing the firm's strategy.

In this section findings related to hypothesis 6 are reported using the whole database. From table IX.1 the reader can observe how strategies break down into the categories "business owner," "professional manager," or "managerial team".

Table IX.1. Strategy vis-à-vis person responsible for its implementation.

	Reactor	Defender	Analyzer	Prospector
Business owner	20	38	33	39
Professional manager	2	20	11	12
Managerial team	0	2	0	3

The above table shows that in 130 of 180 (72%) cases the business owner is also the person responsible for implementing the firm's strategy. Five firms in the sample reported that strategy implementation is a responsibility of a team formed by the owner and the general manager. Chi-square analysis (9.22774, $p=.1612 > .05$) does not support the hypothesis that an association exists between the person responsible for the firm's strategy and the strategy implemented. The t-test analysis ($F=1.25$, pooled variance $t\text{-value}=1.25$, $p > 0.05$) does not support the hypothesis that a professional general manager will implement a prospector strategy, while the business owner will implement a defender strategy (6a). Hypothesis 6b which proposed that a professional general manager will implement an analyzer strategy, while the business owner will implement a defender strategy could not be sustained either ($F= 1.20$ pooled variance $t\text{-value}=1.03$, $p > 0.5$).

IX.A. The capital goods industry.

This section addresses proposition 6 for the capital goods industry. Table IX.A.1 shows the distribution of strategic orientations in relation to the person responsible for their implementation.

Table IX.A.1. Strategy vis-à-vis person responsible for its implementation in the capital goods industry.

	None	Reactor	Defender	Analyzer	Prospector
Business owner		1	1	3	3
Professional manager	1				2

From the above table the reader can observe that the implementation of the strategic orientation is responsibility of the owner in 8 out of the 11 cases considered. This finding reveals that firms competing in the capital goods industry

are primarily managed by the business owner who plays the role of the top decision-maker. Chi-square analysis (4.9500 $p=.2925$) suggests that the category of strategy selected is independent of the person responsible for its implementation. The t-test analysis could not be obtained because the analyzer and the defender categories showed no variance around their means, making comparisons with the prospector category unfeasible.

IX.B. The metal mechanic industry.

Here are reported findings related to the hypothesized association between the person responsible for implementing the firm's strategy and strategy itself. From table IX.B.1 the reader can observe how strategies break down into the categories "business owner," "professional manager," or "managerial team".

Table IX.B.1. Strategy vis-à-vis person responsible for its implementation in the metal mechanic industry.

	Reactor	Defender	Analyzer	Prospector
Business owner	14	20	14	14
Professional manager	2	2	3	3
Managerial team		1		2

The above table shows that in 62 of 75 cases the business owner is also the person responsible for implementing the firm's strategy. Three firms in the sample reported that strategy implementation is a responsibility of a team formed by the owner and the general manager. Chi-square analysis (4.33475 $p=.6315$) does not provide support to suggest that an association exists between the person responsible for the firm's strategy and the strategy implemented. The t-test analysis ($F=1.78$, pooled variance $t\text{-value}=.78$, $p=.22 > .05$) does not provide support for the hypothesis that a professional general manager will implement a prospector

strategy, while the business owner will implement a defender strategy (hypothesis 6a). Support was not found for hypothesis 6b which suggested that a professional general manager will implement an analyzer strategy, while the business owner will implement a defender strategy ($F=1.78$, pooled variance t -value=.78, $p > .05$).

IX.C. The foundry industry.

This section discusses the findings related to the foundry industry. Almost all firms in the sample (one case is missing) reported that the strategic orientation is the responsibility of the business owner (see Table IX.C.1). This may be due to the fact that 11 of the 14 firms are classified as either micro or small so that the owner performs most general management responsibilities.

Table IX.C.1. Strategy vis-à-vis person responsible for its implementation in the foundry industry.

	Reactor	Defender	Analyzer	Prospector
Owner	1	4	3	5

Since statistics cannot be computed when the number of non-empty rows or columns is 1, chi-square analysis and t -test are not appropriate for the foundry industry.

IX.D. The construction supply industry.

This section reports findings on the construction supply industry regarding the association between the person responsible for the firm's strategy and the strategy implemented (see Table IX.D.1).

Table IX.D.1. Strategy vis-à-vis person responsible for its implementation in the construction supply industry.

	None	Defender	Analyzer	Prospector
Owner	1	6	2	9
Professional manager		13		3
Managerial team		1		1

The reader can observe that none of the firms in the sample were classified in the reactor category and that one firm could not be identified with the typology of strategy under study. Also, it should be noted that the responsibility for the firm's implementation in two cases belongs to a managerial team formed by the business owner and a general manager. Chi-square (8.91635, $p=.1783$) reveals that strategies and the person responsible for their implementation are independent of each other. In this industry, it seems that the professional general manager is more likely to be a defender, while the business owner tends to be a prospector ($F=1.12$, separate variance $t\text{-value}=2.55$, $p=.005 < .05$). This argument is opposed to that suggested by hypothesis 6a. Since no professional manager in the sample selected an analyzer strategy, hypothesis 6b cannot be tested.

IX.E. The chemical industry.

In this section, findings regarding strategic orientations and their association with the person responsible for their implementation are reported. Table IX.E.1 shows how strategies break down into the categories of "business owner" and "professional manager."

Table IX.E.1. Strategy vis-à-vis person responsible for its implementation in the chemical industry.

	Reactor	Defender	Analyzer	Prospector
Business owner	4	7	11	8
Professional manager		5	8	4

Chi-square was computed to find support for the hypotheses that a significant association exists between the position of the person responsible for the strategy implementation and strategy implemented. A chi-square of 2.75541 was found ($p=.4309$), which suggests that the strategy implemented is independent of who the person responsible for its implementation is. The t-test analysis does not provide support for hypothesis 6a. ($F=1.09$, pooled variance $t\text{-value}=.41$, $p>.05$) or hypothesis 6b. ($F=1.03$, pooled variance $t\text{-value}=.02$, $p>.05$).

Based on the agency-cost theory, it was originally assumed that some differences would exist in the strategy implemented given who the person responsible for its implementation was (the business owner or a professional general manager. However, it appears that no significant associations exist between the category of strategy and the strategy implemented. A potential explanation for this finding may come from the fact that the business owner is responsible for the firm's strategy most of the time (72% of the cases in the sample). In other words, there is not much variance between the strategy and the business owner or professional management status.

X. GENERAL MANAGER'S EDUCATIONAL LEVEL UNDER MILES AND SNOW'S TYPOLOGY.

This chapter addresses the question of whether the level of formal education of the person responsible for the firm's strategy influences strategy implementation. This research question has been formally stated in the following hypotheses

Hypothesis 7a: highly educated decision-makers, having at least a bachelor's degree, will implement a prospector strategy, while less educated decision-makers, having at most a high school diploma, will implement a defender strategy.

Hypothesis 7b: highly educated decision-makers, having a bachelor's degree, will implement an analyzer strategy, while less educated decision makers, having at most a high school diploma will implement a defender strategy.

Table X.1 presents the reader with a framework of reference for how formal education breaks down into the categories of strategic orientation under study and covers all the categories of formal education ascertained through the questionnaire. These categories were classified into two broader groups as explained in the research hypotheses.

Table X.1. Strategy by educational level of the person responsible for its implementation.

	None	Reactor	Defender	Analyzer	Prospector
Doctoral degree					2
Unfinished doctoral degree					
Master's degree	1	2	11	8	13
Unfinished master's degree			3	2	6
Bachelor's	1	13	38	26	28
Unfinished bachelor's degree		4	5	4	2
High school		1	2	3	2
Unfinished high school					
Junior high or elementary school	1	1	1	1	2
No level of education		1			

The above table shows that 154 of the sample's 184 top decision-makers hold at least one college degree. The highest frequency belongs to the bachelor's degree category; only two top decision-makers hold a Ph.D. None of the managers in the sample were classified in the "unfinished doctoral degree" or "unfinished high school" categories.

Specifically, this section reports findings on whether the level of formal education of the person responsible for the firm's strategy influences strategy implementation (hypotheses 7a and 7b). Table X.1 shows that 153 of 181 top managers hold at least one bachelor's degree.

Table X.2. Strategy by grouped educational level of the person responsible for its implementation.

	Reactor	Defender	Analyzer	Prospector
High formal education	15	53	36	49
Low formal education	7	7	8	6

Chi-square was computed to test for the degree of association between the two categories of interest. A value of 6.28255 ($p=.0986$) suggests independence between the level of formal education of the top decision-maker and the strategy implemented. The t-test analyses do not provide support for hypothesis 7a ($F=1.78$, pooled variance $t\text{-value}=1.12$, $p>.05$) and hypothesis 7b ($F=1.22$, pooled variance $t\text{-value}=.47$, $p>.05$).

X.A. The capital goods industry.

In this section of the report an answer is sought for hypotheses 7a and 7b in the capital goods industry. Table X.A.1 shows that there are no firms in the sample whose top decision-maker has at most a high school diploma.

Table X.A.1. Strategy by educational level of the person responsible for its implementation in the capital goods industry.

	None	Reactor	Defender	Analyzer	Prospector
Highly educated	1	1	1	3	5

From the table above the reader can also observe that 5 of the 11 firms in the sample were classified in the prospector category. Unfortunately, statistics cannot be computed when the number of non-empty rows or columns is 1. Thus no statistical conclusions can be derived for the capital goods industry.

X.B. The metal mechanic industry.

This section reports findings on whether the degree of formal education of the person responsible for the firm's strategy influences strategy implementation in the metal mechanic industry. Table IX.B.1 shows that 56 of the 76 top managers in the sample hold at least a bachelor's degree.

Table X.B.1. Strategy by educational level of the person responsible for its implementation in the metal mechanic industry.

	Reactor	Defender	Analyzer	Prospector
High formal education	11	17	13	15
Low formal education	5	6	4	5

Chi-square was computed to test for the degree of association between the two categories of interest. A value of .28744 ($p=.9624$) does not corroborate such association. The t-test analyses do not support hypothesis 7a ($F=2.37$, pooled variance $t\text{-value}=.35$) or hypothesis 7b ($F=1.32$, pooled variance $t\text{-value}=1.01$, $p>.05$) either.

X.C. The foundry industry.

In this section, the findings are reported on the hypotheses 7a and 7b. Table X.C.1 shows how categories of formal education break down into strategic orientations.

Table X.C.1. Strategy by educational level of the person responsible for its implementation in the foundry industry.

	None	Reactor	Analyzer	Defender	Prospector
High formal education			3	2	4
Low formal education	1	1	1	1	1

From the table above, the reader can observe that one top manager with little formal education does not consider his firm to follow any of the proposed strategies. Chi-square (4.34519, $p=.3613$) suggests that level of education and business strategy are independent of each other. In addition, t-test analysis was obtained. However, no support was found for hypothesis 7a ($F=1.45$, pooled variance $t\text{-value}=.74$, $p>.05$) or hypothesis 7b ($F=1.54$, pooled variance $t\text{-value}=1.18$, $p>.05$) either.

X.D. The construction supply industry.

This section attempts to determine the plausibility of hypotheses 7a and 7b by finding support for the suggestion that the degree of formal education influences strategy implementation. Unfortunately, all respondents were classified as having a high degree of formal education, thus providing no possibility for statistical analysis (see Table X.D.1) .

Table X.D.1. Strategy by educational level of the person responsible for its implementation in the construction supply industry.

	None	Defender	Analyzer	Prospector
High formal education	1	20	2	13

As can be seen from this table, one respondent considered his firm to be pursuing a strategy different from those proposed by Miles and Snow, and only 2 out of 36 firms in the sample have implemented an analyzer strategy. Since no decision-maker could be classified in the "low formal education" category, neither chi-square or t-test analysis were possible to obtain.

X.E. The chemical industry.

This section test hypotheses 7a and 7b and reports findings for the chemical industry. The analysis attempts to provide evidence suggesting that a difference exists in the strategic orientation depending on the category of education of the person responsible for its implementation. Table X.E.1 reveals how the data break down into the categories of interest.

Table X.E.1. Strategy by educational level of the person responsible for its implementation in the chemical industry.

	Reactor	Defender	Analyzer	Prospector
High formal education	3	12	16	12
Low formal education	1		3	

Chi-square analysis (4.92220 $p=.1776$) determines that there is no association between the strategy implemented by the firm and the degree of formal education of the person responsible for its implementation. T-tests could not be calculated because every top manager with a high level of formal education was classified as implementing a prospector or defender strategy. In other words, no decision maker with a low level of formal education implemented a defender or a prospector strategic orientation.

Based on literature that suggested that certain managerial characteristics would make a difference on strategy (i.e. Gupta and Govindarajan, 1984; Miller and Toulouse, 1986; and Resenos, 1980) it was hypothesized that one managerial variable, the level of formal education, would have an impact on the business strategy implemented. The results of the statistical analysis did not support this rationale. This was probably due to the fact that most decision-makers hold a bachelor's degree, so there is little variance in the level of education that contributes to explaining differences in strategy implementation

XI. PORTER'S TYPOLOGY IN EACH INDUSTRIAL SECTOR.

This chapter provides a general overview of how Porter's generic competitive strategies break down into each sector of activity. It also serves as a departure point for the following chapters in which distinctive competences, financial performance, and general manager variables are studied. Furthermore, in order to provide an overview of the sectors studied, hypothesis 1a is tested, regardless of the industry (see Table XI.1).

Table XI.1. Categories of strategy by firm size.

	Micro	Small	Medium	Large	Total
None	0	1	0	1	2
Cost leadership	12	29	4	5	50
Differentiation	18	41	18	9	86
Focus cost leadership	4	8	3	1	16
Focus differentiation	11	6	1	1	19
Stuck in the middle	2	6	0	2	10
Total	47	91	26	19	183*

* One large firm missing.

As the reader can observe from the above table, only two firms from the sample reported not to follow strategies similar to those proposed by Porter, thus providing support for hypothesis 1a. Additionally, most firms fall into the small-size category (between 16 and 100 employees, or annual sales ranging from N\$572,940.50 to N\$5,807,533.25). This pattern is consistent throughout all sectors studied, and in general, provides a clear idea as to industry size in San Luis Potosí.

XI.A. The capital goods industry.

This section presents information aimed at substantiating hypothesis 1a of the capital goods industry study. Hypothesis 1a proposes that all of Porter's generic strategies will be present in this industrial sector.

In order to provide the reader a clearer understanding of the structure of the capital goods sector in San Luis Potosí, data was broken down into size categories (see Table XI.A.1).

Table XI.A.1. Categories of strategy by firm size in the capital goods industry.

	Micro	Small	Medium	Large	Total
Cost leadership	0	4	1	0	5
Differentiation	1	3	0	2	6
Total	1	7	1	2	11

As can be observed, only two generic strategies--cost leadership and differentiation--are being pursued in the capital goods industry, which does not provide support for hypothesis 1. However, it is interesting to note that the two strategies followed are broad in scope: they do not focus on a market niche, and neither is "stuck in the middle." This implies that firms in this industrial sector follow clearly identifiable strategy patterns.

XI.B The metal mechanic industry.

In the metal mechanic industry, all of Porter's categories ("stuck in the middle" included) are present (see Table XI.B.1).

Table XI.B.1. Categories of strategy by firm size in the metal mechanic industry.

	Micro	Small	Medium	Large	Total
None				1	1
Cost leadership	6	11	0	2	19
Differentiation	12	11	5	5	33
Focus cost leadership	3	2	1	1	7
Focus differentiation	7	3	0	1	11
Stuck in the middle	2	3	0	0	5
Total	30	30	6	10	76

The above table provides support for hypothesis 1a it can be observed that most firms fall either in the micro size category (fewer than 15 employees and sales up to N\$572,940.50) or in the small-size category (between 16 and 100 employees, or annual sales of N\$572,940.50 and N\$5,807,533.25). The reader can also observe that only one firm reported following a strategy other than those proposed by Porter.

XI.C. The foundry industry.

The focus cost leadership strategy is not present in the foundry industry (see Table XI.C.1). Thus hypothesis 1a, which proposes that all of Porter's generic strategies will be present in each industry sector, is not supported.

Table XI.C.1. Categories of strategy by firm size in the foundry industry.

	Micro	Small	Large	Total
None	0	1	0	1
Cost leadership	0	2	1	3
Differentiation	2	4	1	7
Focus differentiation	1	1	0	2
Stuck in the middle	0	0	1	1
Total	3	8	3	14

The reader can observe that no medium-sized firms are present in the sample and that most firms fall in the small size category. Additionally, only one firm reported that its strategy is different from those proposed by Porter.

XI.D. The construction supply industry.

In the construction supply industry, all of Porter's generic strategies are present (see Table XI.D.1). This supports hypothesis 1a which proposes that generic strategies will be present in each industrial sector.

Table XI.D.1. Categories of strategy by firm size in the construction supply industry.

	Micro	Small	Medium	Large	Total
Cost leadership	0	6	3	0	9
Differentiation	2	11	7	0	20
Focus cost leadership	0	1	1	0	2
Focus differentiation	2	0	0	0	2
Stuck in the middle	0	1	0	1	2
Total	4	19	11	1	35

From the table above, it can be observed that all firms in the sample were classified in one of Porter's generic strategies, i.e., each reported to follow one of them. In addition, the reader can observe that most firms fall into the small size category (between 16 and 100 employees, or annual sales between N\$572,940.5 and N\$5,807,533.25).

XI.E. The chemical industry.

As predicted by hypothesis 1a, the five generic strategies are present in the chemical industry (see Table XI.E.1).

Table XI.E.1. Categories of strategy by firms size in the chemical industry.

	Micro	Small	Medium	Large	Total
Cost leadership	6	6	0	2	14
Differentiation	1	12	6	1	20
Focus cost leadership	1	5	1	0	7
Focus differentiation	1	2	1	0	4
Stuck in the middle	0	2	0	0	2
Total	9	27	8	3	47

Furthermore, the reader can observe that all firms in the sample were classified in one of Porter's categories of strategy and that most firms in the sample are small businesses (between 16 and 100 employees, or annual sales between N\$572,940.5 and N\$5,807,533.25).

To conclude Chapter XI, hypothesis 1 received support in the metal mechanic, construction supply, and chemical industries. In the capital goods industry, only the general cost leadership and general differentiation categories of strategies were present. In the foundry industry, only the focus cost leadership strategy was not present. From this discussion, it appears that Porter's generic strategies are useful as a framework for studying the strategies followed by top managers in the industrial sectors analyzed in this research.

XII. FINANCIAL PERFORMANCE UNDER PORTER'S TYPOLOGY.

Porter's typology of competitive strategy (1980) was correlated with financial performance indicators in each industry studied. Though establishing causal relationships was not the purpose, the association between categories of strategies and financial performance was indeed aimed at finding identifiable patterns that suggested improved financial performance under the general cost leadership, general differentiation, focus cost leadership or focus differentiation strategies than under the "stuck in the middle".

This section of Chapter XII reports findings for propositions 2, 3, 4, and 5 using the whole database (184 cases). Chi-square analysis was done in order to find significant associations between the categories of strategy proposed by Porter (1980) and the financial performance indicators studied in this research. The analysis revealed the following: 1) there does not appear to be an association (chi-square=13.10893, $p=.1082$) between the firm's net profit margin compared to that of the industry and the category of strategy selected (DF); 2) a strong significant association (chi-square=40.12388, $p=.0007$) appears to exist between the strategy employed and the firm's current net profit margin compared to the financial results under the previous competitive strategy (UN); 3) a strong association (chi-square=39.96573, $p=.0008$) exists between strategies and the firm's current market share compared to the previous strategy (PM). No significant associations were found between strategy and net profit margin increases (chi-square=9.82426, $p=.2776$) over the last three years (MC) or market share increases (Chi-square=9.78567, $p=.6088$) over the last three-year period (PG). Additionally, correlation analysis was performed in order to ascertain the strength and direction of the existing associations (see Table XII.1).

Table XII.1. Porter's categories of strategy correlated with financial performance indicators.

	Cost Leadership	Differentiation	Focus cost leadership	Focus differentiation	Stuck in the middle
Firm's net profit margin compared to the industry's (DF)	.0587	.0932	-.0376	-.1240*	-.1031
Firm's net profit margin compared to the previous strategy (UN)	-.0048	-.0742	-.0270	.0456	.1431*
Firm's market share compared to the previous strategy (PM)	.0838	-.1602*	-.0480	.0847	.1329*
Firm's net profit margin for the last three years (MC)	.0439	.0369	.0325	-.0833	-.0934
Firm's market share for the last three years (PG)	-.0723	.1045	.0088	-.0562	-.0233

* $p < .05$.

From the table above, the reader can observe that general differentiator firms have increased market share ($p < .05$) compared to that under the previous strategy, and "stuck in the middle" firms have decreased theirs. Also "stuck in the middle" firms have decreased their net profit margin compared to that of the firm's previous

strategy ($p < .05$). Finally firms following a focus differentiation strategy have obtained below-average net profit margins for the industry ($p < .05$).

The following paragraphs report the results of t-test analysis done to find additional support for the research hypotheses.

Hypothesis 2a predicts that, compared to the industry's average performance, firms following a general cost leadership strategy will obtain higher net profit margins than "stuck in the middle" firms (DF). T-test analysis does not support this hypothesis ($F = 1.82$, pooled variance t-value = 1.63, $p = .0545 > .05$).

Hypothesis 2b suggests that, compared to the firm's net profit margin under the previous competitive strategy, the current net profit margin will be higher under the general cost leadership strategy than under the "stuck in the middle" position (UN). This hypothesis cannot be supported ($F = 2.21$, separate variance t-value = 1.21, $p = .1255$).

Hypothesis 2c postulates that, compared to the firm's market share under the previous competitive strategy, the current market share will be higher under the general cost leadership strategy than under the "stuck in the middle" position (PM). T-test analysis does not support this hypothesis ($F = 4.26$, separate variance t-value = .81, $p = .2180 > .05$).

Hypothesis 2d suggests that firms following a general cost leadership strategy have increased their net profit margin more than "stuck in the middle" firms over the last three years (MC). T-test analysis does not support this hypothesis ($F = 2.19$, pooled variance t-value = 1.29, $p = .1015 > .05$).

Hypothesis 2e predicts that firms following a general cost leadership strategy have increased their market share more than "stuck in the middle" firms over the

last three years (PG). Evidence was not found to support this hypothesis ($F=1.79$, pooled variance $t\text{-value}=.01$, $p=.4970 > .05$).

Hypothesis 3a postulates that, compared to the industry's average performance, firms following a general differentiation strategy will obtain higher net profit margins than "stuck in the middle" firms (DF). T-test analysis does not support this hypothesis ($F=1.38$, pooled variance $t\text{-value}=1.54$, $p=.0640 > .05$).

Hypothesis 3b predicts that, compared to the firm's net profit margin under the previous competitive strategy, the current net profit margin will be higher under the general differentiation strategy than under the "stuck in the middle" position (UN). T-test analysis does not support this hypothesis ($F=2.48$, separate variance $t\text{-value}=1.37$, $p=.1005 > .05$).

Hypothesis 3c predicts that, compared to the firm's market share under the previous competitive strategy, the current market share will be higher under the general differentiation strategy than under the "stuck in the middle" position (PM). Evidence does not sustain this hypothesis ($F=2.44$, separate variance $t\text{-value}=1.38$, $p=.0990 > .05$).

Hypothesis 3d proposes that firms following a general differentiation strategy have increased their net profit margin more than "stuck in the middle" firms over the last three years (MC). T-test analysis does not support this hypothesis ($F=1.97$, pooled variance $t\text{-value}=1.23$, $p=.1110 > .05$).

Hypothesis 3e proposes that firms following a general differentiation strategy have increased their market share more than "stuck in the middle" firms over the last three years (PG). Evidence does not support this hypothesis ($F=2.22$, pooled variance $t\text{-value}=.61$, $p=.2710 > .05$).

Hypothesis 4a predicts that compared to the industry's average performance, firms following a focus cost leadership strategy obtain higher net profit margins than "stuck in the middle" firms (DF). There is insufficient evidence to support this hypothesis ($F=1.82$, pooled variance t -value $=.76$, $p=.2275 > .05$).

Hypothesis 4b suggests that, compared to the firm's net profit margin under the previous competitive strategy, the current net profit margin is higher under the focus cost leadership strategy than under the "stuck in the middle" position (UN). Evidence supporting this hypothesis is lacking ($F=2.16$, pooled variance t -value $=1.37$, $p=.0920 > .05$).

Hypothesis 4c proposes that, compared to the firm's market share under the previous competitive strategy, the current market share is higher under the focus cost leadership strategy than under the "stuck in the middle" position (PM). Evidence does not exist to support this hypothesis ($F=3.52$, separate variance t -value $=1.46$, $p=.1130 > .05$).

Hypothesis 4d predicts that firms following a focus cost leadership strategy have increased their net profit margin more than "stuck in the middle" firms over the last three years (MC). Evidence for sustaining this hypothesis is insufficient ($F=1.63$, pooled variance t -value $=1.01$, $p=.1615 > .05$).

Hypothesis 4e postulates that firms following a focus cost leadership strategy have increased their market share more than "stuck in the middle" firms over the last three years (PG). No evidence is found to support this hypothesis ($F=2.30$, pooled variance t -value $=.27$, $p=.3940 > .05$).

Hypothesis 5a suggests that, compared to the industry's average performance, firms following a focus differentiation strategy will obtain higher net profit margins

than "stuck in the middle" firms (DF). There is insufficient evidence to sustain this hypothesis ($F=1.18$, pooled variance t -value $=.13$, $p=.4480 > .05$).

Hypothesis 5b predicts that, compared to the firm's net profit margin under the previous competitive strategy, the current net profit margin will be higher under the focus differentiation strategy than under the "stuck in the middle" position (UN). Evidence does not support this hypothesis ($F=3.36$, separate variance t -value $=.89$, $p=.1950 > .05$).

Hypothesis 5c suggests that, compared to the firm's market share under the previous competitive strategy, the current market share will be higher under the focus differentiation strategy than under the "stuck in the middle" position (PM). Evidence is not found to support this hypothesis ($F=2.33$, pooled variance t -test $=.61$, $p=.273 > .05$).

Hypothesis 5d proposes that firms following a focus differentiation strategy have increased their net profit margin more than "stuck in the middle" firms over the last three years (MC). No evidence is found to support this hypothesis ($F=1.95$, pooled variance t -value $=.32$, $p=.3755 > .05$).

Hypothesis 5e proposes that firms following a focus differentiation strategy have increased their market share more than "stuck in the middle" firms over the last three years (PG). No evidence is found to sustain this hypothesis ($F=1.99$, pooled variance t -value $=.15$, $p=.4415 > .05$).

Although a few significant associations were found, correlation analysis provides some evidence to suggest that firms following a general differentiation strategy obtain better financial results, as measured by market share increases compared to those obtained under the firm's previous strategy, than "stuck in the

middle" firms. It is worth mentioning that in 2 of the 5 financial performance indicators used--net profit margin and market share compared to the previous strategy--, "stuck in the middle" firms have obtained unfavorable financial results.

XII.A. The capital goods industry.

Section XII.A. reports findings for propositions 2, 3, 4 and 5 for the capital goods industry. Chi-square analysis was done first identify associations between strategy and financial performance. This analysis reveals that: 1) a firm's net profit margin compared to the industry's average (DF) is independent of the strategy followed (2.03704 $p=.3611$); 2) a firm's market share compared to the results obtained under the previous strategy (PM) is independent of the current strategy (5.23809 $p=.0729$); 3) a firm's net profit margin increases over the last three years (MC) is independent of the strategy pursued (.77381, $p=.6792$); and 4) a firm's market share increases over the last three years (PG) is independent of the cost leadership strategies (.77381 $p=.6792$). Since the crosstabulation of Porter's categories of strategy by the variable measuring the firm's net profit margin compared to the previous strategy (UN) resulted in a 2-by-2 matrix, Fisher's exact test was calculated (one-tail=.34848); it indicates independence between the variables of interest. Although no strong associations were found, some insights--discussed in the following paragraphs--are observable from the correlation analysis (see Table XII.A.1). T-test analysis was not possible because, in the capital good industry sector, no firms were classified in the "stuck in the middle position," the group with which the categories of strategy is compared.

Table XII.A.1. Porter's categories of strategy correlated with financial performance indicators in the capital goods industry.

	Cost Leadership	Differentiation	Focus cost leadership	Focus differentiation	Stuck in the middle
Firm's net profit margin compared to the industry's (DF)	.0000	.0000	.	.	.
Firm's net profit margin compared to the previous strategy (UN)	.5345	-.5345	.	.	.
Firm's market share compared to the previous strategy (PM)	.000	.0000	.	.	.
Firm's net profit margin for the last three years (MC)	-.2274	.2274	.	.	.
Firm's market share for the last three years (PG)	-.2274	.2274	.	.	.

"." is printed if a coefficient cannot be computed.

In conclusion, an in-depth analysis of the proposed hypotheses in the capital goods industry was not possible because firms in the sample reported following only the general cost leadership and the general differentiation strategies. However, this reveals that competitive strategies in the capital goods industry are broad in scope. Furthermore, when correlated with financial performance, moderate support

suggests that firms following a general differentiation strategy have increased their net profit margin compared to their previous strategy, while firms pursuing a general cost leadership strategy have tended to decrease their net profit margin compared to their former strategic orientation.

XII.B. The metal mechanic industry.

This section of Chapter XII reports findings for proposition 2, 3, 4, and 5 for the metal mechanic industry. Chi-square analysis was done in order to find significant associations between the categories of strategy proposed by Porter (1980) and the financial performance indicators studied in this research. The analysis revealed the following: 1) there appears to be a moderate association (chi-square=17.77632, $p=.0589$) between the firm's net profit margin compared to that of the industry and the category of strategy selected (DF); 2) a significant association (chi-square=36.20972, $p=.0145$) appears to exist between the strategy employed and the firm's current net profit margin compared to the financial results under the previous competitive strategy (UN); 3) a strong association (chi-square=48.52986, $p=.0004$) exists between strategies and the firm's current market share compared to the previous strategy (PM). No significant associations were found between strategy and net profit margin increases ($p=.2520$) over the last three years (MC) or market share increases ($p=.6088$) over the last three-year period (PG). Additionally, correlation analysis was performed in order to ascertain the strength and direction of the existing associations (see Table XII.B.1).

Table XII.B.1. Porter's categories of strategy correlated with financial performance indicators in the metal mechanic industry.

*p < .05 **p < .01 ***p < .001	Cost Leadership	Differentiation	Focus cost leadership	Focus differentiation	Stuck in the middle
Firm's net profit margin compared to the industry's (DF)	.0071	.2921**	.0186	-.2933**	-.2168*
Firm's net profit margin compared to the previous strategy (UN)	.0448	-.2207*	.0027	.0096	.3279**
Firm's market share compared to the previous strategy (PM)	.1034	-.3071**	-.0438	.0847	.3491***
Firm's net profit margin for the last three years (MC)	.1403	.0536	.0059	-.0969	-.2175*
Firm's market share for the last three years (PG)	-.0689	.1866	.0601	-.0819	-.1967*

From the table above, the reader can observe a number of significant relationships. Some evidence exists to suggest that firms following a general differentiation strategy tend to obtain: 1) above-average net profit margins for the industry ($p < .01$), 2) higher net profit margins compared to their previous strategy ($p < .05$), 3) a higher market share compared to their previous strategy ($p < .01$). Evidence also exists to suggest that firms following a focus differentiation strategy ($p < .01$) or classified as "stuck in the middle" position ($p < .05$) tend to obtain below-average the industry's net profit margins for the industry. "Stuck in the middle" firms also show unfavorable relationships with: 1) net profit margin increases compared to their previous strategy ($p < .01$), 2) market share increases compared to their previous strategy ($p < .01$), 3) net profit margin increases over the last three years ($p < .05$), and 4) market share increases over the last three-year period ($p < .05$).

The following paragraphs report on the results of t-test analysis done to find additional support for the research hypotheses.

Hypothesis 2a predicts that, compared to the industry's average performance, firms following a general cost leadership strategy will obtain higher net profit margins than "stuck in the middle" firms (DF). Some evidence ($F=2.04$, pooled variance $t\text{-value}=2.04$, $p=.027 < .05$) exists to support this hypothesis.

Hypothesis 2b suggests that, compared to the firm's net profit margin under the previous competitive strategy, the current net profit margin will be higher under the general cost leadership strategy than under the "stuck in the middle" position (UN). Evidence ($F=2.33$, pooled variance $t\text{-value}=2.11$, $p=.023 < .05$) exists to support this hypothesis.

Hypothesis 2c postulates that, compared to the firm's market share under the previous competitive strategy, the current market share will be higher under the general cost leadership strategy than under the "stuck in the middle" position (PM). Evidence ($F=2.57$, pooled variance $t\text{-value}=2.66$, $p=.007 < .05$) exists to support this hypothesis.

Hypothesis 2d suggests that firms following a general cost leadership strategy have increased their net profit margin more than "stuck in the middle" firms over the last three years (MC). Evidence ($F=2.21$, pooled variance $t\text{-value}=2.27$, $p=.017 < .05$) exists to support this hypothesis.

Hypothesis 2e predicts that firms following a general cost leadership strategy have increased their market share more than "stuck in the middle" firms over the last three years (PG). Evidence was not found to support this hypothesis ($F=1.47$, separate variance $t\text{-value}=1.16$, $p=.146 > .05$).

Hypothesis 3a postulates that, compared to the industry's average performance, firms following a general differentiation strategy will obtain higher net profit margins than "stuck in the middle" firms (DF). Evidence ($F=1.04$, separate variance $t\text{-value}=2.28$, $p=.034 < 0.5$) tends to support this hypothesis.

Hypothesis 3b predicts that, compared to the firm's net profit margin under the previous competitive strategy, the current net profit margin will be higher under the general differentiation strategy than under the "stuck in the middle" position (UN). Evidence ($F=2.45$, pooled variance $t\text{-value}=3.05$, $p=.002 < .05$) exists to support this hypothesis.

Hypothesis 3c predicts that, compared to the firm's market share under the previous competitive strategy, the current market share will be higher under the

general differentiation strategy than under the "stuck in the middle" position (PM). Evidence ($F=1.35$, separate variance t -value= 2.83 , $p=.019 < .05$) sustains this hypothesis.

Hypothesis 3d proposes that firms following a general differentiation strategy have increased their net profit margin more than "stuck in the middle" firms over the last three years (MC). There exists some evidence ($F=1.51$, pooled variance t -value= 1.75 , $p=.044 < .05$) to support this hypothesis.

Hypothesis 3e proposes that firms following a general differentiation strategy have increased their market share more than "stuck in the middle" firms over the last three years (PG). Evidence is found to support this hypothesis ($F=1.51$, pooled variance t -value= 1.96 , $p=.029 < .05$).

Hypothesis 4a predicts that compared to the industry's average performance, firms following a focus cost leadership strategy obtain higher net profit margins than "stuck in the middle" firms (DF). There is insufficient evidence to support this hypothesis ($F=2.10$, pooled variance t -value= 1.72 , $p=.058 > .05$).

Hypothesis 4b suggests that, compared to the firm's net profit margin under the previous competitive strategy, the current net profit margin is higher under the focus cost leadership strategy than under the "stuck in the middle" position (UN). Evidence supporting this hypothesis is lacking ($F=1.88$, pooled variance t -value= 1.68 , $p=.063 > .05$).

Hypothesis 4c proposes that, compared to the firm's market share under the previous competitive strategy, the current market share is higher under the focus cost leadership strategy than under the "stuck in the middle" position (PM).

Evidence exists to support this hypothesis ($F=5.25$, pooled variance t -value= 2.78 , $p=.010 < .05$).

Hypothesis 4d predicts that firms following a focus cost leadership strategy have increased their net profit margin more than "stuck in the middle" firms over the last three years (MC). Evidence for sustaining this hypothesis is insufficient ($F=1.20$, separate variance t -value= 1.19 , $p=.134 > .05$).

Hypothesis 4e postulates that firms following a focus cost leadership strategy have increased their market share more than "stuck in the middle" firms over the last three years (PG). No evidence is found to support this hypothesis ($F=1.40$, separated variance t -value= 1.39 , $p=.101 > .05$).

Hypothesis 5a suggests that, compared to the industry's average performance, firms following a focus differentiation strategy will obtain higher net profit margins than "stuck in the middle" firms (DF). There is insufficient evidence to sustain this hypothesis ($F=1.10$, separate variance t -value= 0.19 , $p=.428 > .05$).

Hypothesis 5b predicts that, compared to the firm's net profit margin under the previous competitive strategy, the current net profit margin will be higher under the focus differentiation strategy than under the "stuck in the middle" position (UN). Evidence is found to support this hypothesis ($F=4.07$, pooled variance t -value= 2.25 , $p=.021 < .05$).

Hypothesis 5c suggests that, compared to the firm's market share under the previous competitive strategy, the current market share will be higher under the focus differentiation strategy than under the "stuck in the middle" position. Evidence is found to support this hypothesis ($F=2.17$, pooled variance t -test= 2.11 , $p=.027 < .05$).

Hypothesis 5d proposes that firms following a focus differentiation strategy have increased their net profit margin more than "stuck in the middle" firms over the last three years (MC). No evidence is found to support this hypothesis ($F=1.42$, separate variance t -value $=.98$, $p=.197 > .05$).

Hypothesis 5e proposes that firms following a focus differentiation strategy have increased their market share more than "stuck in the middle" firms over the last three years (PG). No evidence is found to sustain this hypothesis ($F=1.33$, separate variance t -value $=.86$, $p=.208 > .05$).

The discussion presented in this chapter provides support for most of the proposed hypotheses in the metal mechanic industry. A significant association appears to exist between generic strategies and financial performance indicators studied. Firms pursuing a general differentiation strategy appear to obtain significant favorable results in 3 of the 5 financial performance indicators. Firms pursuing a focus differentiation strategy appear to perform below the industry's net profit average, and "stuck in the middle" firms obtained unfavorable results in all five financial performance indicators. Also, most t -test analyses provided support for the research hypotheses. Especially in the cost leadership, and differentiation categories.

XII.C. The foundry industry.

This section of Chapter XII presents findings for the foundry industry in relation to financial performance within each strategy proposed by Porter (1980). Chi-square analysis was done in order to identify significant associations between the generic strategies and financial performance indicators. No significant associations were found. A firm's net profit margin compared to the industry's average (DF)

seems to be independent of the strategy selected (chi-square=7.58889, $p=.4746$); a firm's current net profit margin, compared to the results under the previous strategy (UN) appears to be independent of the strategy pursued (chi-square=4.70992, $p=.8588$); a firm's current market share, compared to the results under the previous strategy (PM) appears to be independent of the firm's current strategy (chi-square=15.94048, $p=.1940$); a firm's net profit margin increases over the last three years (MC) appears to be independent of the firm's current strategy (chi-square=4.41587, $p=.6206$); and a firm's market share increases over the last three-year period (PG) also appear to be independent of the firm's strategy (chi-square=3.26290, $p=.7752$). Correlation analysis shows only one significant relationship (see Table XII.C.1).

Table XII.C.1. Porter's categories of strategy correlated with financial performance indicators in the foundry industry.

	Cost Leadership	Differentiation	Focus cost leadership	Focus differentiation	Stuck in the middle
Firm's net profit margin compared to the industry's (DF)	.1845	.2673	.	-.5231*	-.0833
Firm's net profit margin compared to the previous strategy (UN)	.1419	.1066	.	-.1289	-.2494
Firm's market share compared to the previous strategy (PM)	.1038	-.1755	.	.4091	-.3898
Firm's net profit margin for the last three years (MC)	.1095	-.1852	.	-.1919	.4330
Firm's market share for the last three years (PG)	-.0336	.0568	.	-.1963	.2126

"." is printed if a coefficient cannot be computed.

* $p < .05$.

In the foundry industry, firms utilizing a focus differentiation strategy obtain below-average net profit margins for the industry ($p < .05$). T-test analysis was not possible because only one firm was classified as "stuck in the middle." This implies

that the mean and variance of the "stuck in the middle" group lacks statistical significance.

In conclusion, in the foundry industry financial performance appears to be independent of the competitive strategy implemented as no significant associations were revealed by chi-square analysis. However, correlation analysis indicates that firms pursuing a focus differentiation strategy perform below the industry's average in terms of generating a net profit margin.

XII.D. The construction supply industry.

This section discusses the findings for the construction supply industry in terms of the financial performance indicators under study. Chi-square analysis was completed in order to identify any significant associations between strategies and financial performance indicators of interest. The findings reveal: strong association ($\chi^2=23.29745$, $p=.0030$) between strategies and the variable measuring the firm's net profit margin compared to the previous strategy (DF). Other findings are: a firm's current net profit margin, compared to the performance under the previous strategy (UN), appears to be independent of the current strategy ($\chi^2=2.35178$, $p=.9683$); current market share, compared to market share under the former strategy (PM) appears to be independent of the present strategy ($\chi^2=5.30315$, $p=.9471$); a firm's net profit margin over the last three years (MC) appears to be independent of the strategy pursued ($\chi^2=8.00301$, $p=.4332$); and a firm's market share over the last three years (PG) appears to be independent of the firm's strategy ($\chi^2=12.23542$, $p=.1410$).

Correlation analysis was also done to identify significant relationships between each strategy and the financial performance indicators of interest. It reveals two interesting relationships (see Table XII.D.1).

Table XII.D.1. Porter's categories of strategy correlated with financial performance indicators in the construction supply industry.

	Cost Leadership	Differentiation	Focus cost leadership	Focus differentiation	Stuck in the middle
Firm's net profit margin compared to the industry's (DF)	-.1450	-.1340	.0381	.4824**	.0381
Firm's net profit margin compared to the previous strategy (UN)	.0416	-.0612	-.0587	.1696	-.0587
Firm's market share compared to the previous strategy (PM)	.2113	-.2204	.0884	.0884	-.1050
Firm's net profit margin for the last three years (MC)	-.1468	.0442	.2073	-.0126	-.0126
Firm's market share for the last three years (PG)	-.3803*	.2504	.2073	-.0126	-.0126

*p < .05 **p < .01.

Firms that compete under a focus differentiation strategy tend to obtain above-average net profit margins for the industry ($p=.002 < .01$). Furthermore firms that compete on a cost leadership basis appear to have lost market share over the last three years ($p=.012 < .05$).

In order to find support for the hypotheses, t-test statistics were obtained. The findings are discussed in the following paragraphs.

Hypothesis 2a proposes that, compared to the industry's average performance, firms following a general cost leadership strategy will obtain higher net profit margins than "stuck in the middle" firms (DF). T-test analysis ($F=10.29$, pooled variance $t\text{-value}=.45$, $p=.331 > .05$) does not support this hypothesis.

Hypothesis 2b predicts that, compared to the firm's net profit margin under the previous competitive strategy, the current net profit margin will be higher under the general cost leadership strategy than under the "stuck in the middle" position (UN). T-test analysis ($F=2.00$, pooled variance $t\text{-value}=.40$, $p=.348 > .05$) does not support this hypothesis.

Hypothesis 2c postulates that, compared to the firm's market share under the previous competitive strategy, the current market share will be higher under the general cost leadership strategy than under the "stuck in the middle" position (PM). T-test analysis ($F=2.00$, pooled variance $t\text{-value}=1.21$, $p=.128 > .05$) does not support this hypothesis.

Hypothesis 2d predicts that firms following a general cost leadership strategy have increased their net profit margin more than "stuck in the middle" firms over the last three years (MC). T-test analysis ($F=5.54$, pooled variance $t\text{-value}=.19$, $p=.426 > .05$) does not support this hypothesis.

Hypothesis 2e suggests that firms following a general cost leadership strategy have increased their market share more than "stuck in the middle" firms over the last three years (PG). T-test analysis ($F=8.00$, pooled variance $t\text{-value}=.64$, $p=.269 > .05$) does not support this hypothesis.

Hypothesis 3a proposes that, compared to the industry's average performance, firms following a general differentiation strategy will obtain higher net profit margins than "stuck in the middle" firms (DF). T-test analysis ($F=8.35$, pooled variance $t\text{-value}=.35$, $p=.364 > .05$) does not sustain this hypothesis.

Hypothesis 3b predicts that, compared to the firm's net profit margin under the previous competitive strategy, the current net profit margin will be higher under the general differentiation strategy than under the "stuck in the middle" position (UN). T-test analysis ($F=1.40$, separate variance $t\text{-value}=.19$, $p=.438 > .05$) does not provide support for this hypothesis.

Hypothesis 3c suggests that, compared to the firm's market share under the previous competitive strategy, the current market share will be higher under the general differentiation strategy than under the "stuck in the middle" strategy (PM). T-test analysis ($F=1.11$, separate variance $t\text{-value}=.28$, $p=.408 > .05$) does not support this hypothesis.

Hypothesis 3d predicts that firms following a general differentiation strategy have increased their net profit margin more than "stuck in the middle" firms over the last three years (MC). T-test analysis ($F=7.68$, pooled variance $t\text{-value}=.11$, $p=.455 > .05$) does not sustain this hypothesis.

Hypothesis 3e postulates that firms following a general differentiation strategy have increased their market share more than "stuck in the middle" firms over the

last three years (PG). T-test analysis ($F=8.35$, pooled variance $t\text{-value}=.35$, $p=.364 > .05$) does not support this hypothesis.

Hypothesis 4a proposes that, compared to the industry's average firms following a focus cost leadership strategy will obtain higher net profit margins than "stuck in the middle" firms (DF). T-test analysis could not be obtained because focus cost leadership showed no variance surrounding its mean value.

Hypothesis 4b predicts that, compared to the firm's net profit margin under the previous competitive strategy, the current net profit margin will be higher under the focus cost leadership strategy than under the "stuck in the middle" position (UN). T-test analysis presented showed a value of 0 since the two groups showed the same mean and the same variance. This indicates that both focus cost leadership and "stuck in the middle" groups obtain the same results.

Hypothesis 4c suggests that, compared to the firm's market share under the previous competitive strategy, the current market share will be higher under the focus cost leadership strategy than under the "stuck in the middle" category (PM). T-test analysis could not be obtained because the focus cost leadership group showed no variance around its mean value.

Hypothesis 4d predicts that firms following a focus cost leadership strategy have increased their net profit margin more than "stuck in the middle" firms over the last three years (MC). T-test analysis ($F=4.00$, pooled variance $t\text{-value}=.45$, $p=.349 > .05$) does not support this hypothesis.

Hypothesis 4e postulates that firms following a focus cost leadership strategy have increased their market share more than "stuck in the middle" firms over the

last three years (PG). T-test analysis ($F=4.00$, pooled variance $t\text{-value}=.45$, $p=.349 > .05$) does not support this hypothesis.

Hypothesis 5a postulates that, compared to the industry's average performance, firms following a focus differentiation strategy will obtain higher net profit margins than "stuck in the middle" firms (DF). T-test analysis could not be obtained because the group competing under a focus differentiation strategy showed no variance around its mean value.

Hypothesis 5b predicts that, compared to the firm's net profit margin under the previous competitive strategy, the current net profit margin will be higher under the focus differentiation strategy than under the "stuck in the middle" category (UN). T-test analysis could not be obtained because the focus differentiation group showed no variance around its mean value.

Hypothesis 5c postulates that, compared to the firm's market share under the previous competitive strategy, the current market share will be higher under the focus differentiation strategy than under the "stuck in the middle" position (PM). T-test analysis could not be obtained because the focus differentiation group showed no variance around its mean value.

Hypothesis 5d predicts that firms following a focus differentiation strategy have increased their net profit margin more than "stuck in the middle" firms over the last three years (MC). T-test analysis could not be obtained because the focus differentiation group showed no variance around its mean value.

Hypothesis 5e suggests that firms following a focus differentiation strategy have increased their market share more than "stuck in the middle" firms over the last

three years (PG). T-test analysis could not be obtained because the focus differentiation group showed no variance around its mean value.

In conclusion, although only one significant association was found in the chi-square analysis and none of the proposed research hypotheses could be sustained, two correlations provide relevant information. Firms that compete under a focus differentiation strategy tend to obtain a net profit margin above the industry's average, while firms that compete on a cost leadership basis appear to have lost market share over the last three years ($p = .012 < .05$).

XII.E. The chemical industry.

This section reports findings in the chemical industry. Chi-square analysis was performed to identify any significant associations between the competitive strategies and financial performance indicators studied. The results of the analysis reveal that: a firm's net profit margin compared to the industry's (DF) appears to be independent of the firm's competitive strategy (chi-square=4.06432, $p = .85130 > .05$); a firm's net profit margin, compared to the net profit margin under the previous competitive strategy (UN), appears to be independent of the firm's competitive strategy (chi-square=8.15951, $p = .7725$); a firm's market share, compared to the firm's market share under the previous strategy (PM) appears to be independent of the firm's current strategy (15.14543, $p = .2336$); a firm's net profit margin changes over the last three years (MC) appear to be independent of the firm's current strategy (chi-square=2.99845, $p = .9345$); and a firm's market share changes over the last three years (PG) appear to be independent of the firm's competitive strategy (chi-square=8.41923, $p = .3936$).

Correlation analysis was also performed in order to identify significant relationships between each strategy and the financial performance indicators (see Table XII.E.1).

Table XII.E.1. Porter's categories of strategy correlated with financial performance indicators in the chemical industry.

	Cost Leadership	Differentiation	Focus cost leadership	Focus differentiation	Stuck in the middle
Firm's net profit margin compared to the industry's (DF)	.2020	-.0467	-.1475	-.0401	-.0277
Firm's net profit margin compared to the previous strategy (UN)	-.2079	.1428	-.0208	.1082	.0085
Firm's market share compared to the previous strategy (PM)	-.0264	.0905	-.0638	-.0636	.0387
Firm's net profit margin for the last three years (MC)	.0104	.1104	-.0977	-.0142	-.1019
Firm's market share for the last three years (PG)	.1249	-.0605	-.1828	.0214	.2172

Since neither correlation nor chi-square analysis showed significant associations, it can be assumed that in the chemical industry, a firm's financial performance is independent of the competitive strategy selected. Finally T-test statistics were obtained with the purpose of testing the research hypotheses.

Hypothesis 2a proposes that, compared to the industry's average performance, firms following a general cost leadership strategy will obtain higher net profit margins than "stuck in the middle" firms (DF). T-test analysis could not be obtained because the "stuck in the middle" group showed no variance around its mean.

Hypothesis 2b predicts that, compared to the firm's net profit margin under the previous competitive strategy, the current net profit margin will be higher under the general cost leadership strategy than under the "stuck in the middle" position (UN). T-test analysis ($F=1.59$, pooled variance $t\text{-value}=.43$, $p=.337 > .05$) does not support this hypothesis.

Hypothesis 2c suggests that, compared to the firm's market share under the previous competitive strategy, the current market share will be higher under the general cost leadership strategy than under the "stuck in the middle" position (PM). T-test analysis ($F=1.25$, separate variance $t\text{-value}=.30$, $p=.386 > .05$) does not support this hypothesis .

Hypothesis 2d predicts that firms following a general cost leadership strategy have increased their net profit margin more than "stuck in the middle" firms over the last three years (MC). T-test analysis could not be obtained because the "stuck in the middle" group showed no variance around its mean value.

Hypothesis 2e predicts that firms following a general cost leadership strategy have increased their market share more than "stuck in the middle" firms over the last three years (PG). T-test analysis could not be obtained because the "stuck in the middle" group showed no variance around its mean value.

Hypothesis 3a suggests that, compared to the industry's average performance, firms following a general differentiation strategy will obtain higher net profit margins than "stuck in the middle" firms (DF). T-test analysis could not be calculated because the "stuck in the middle" group showed no variance around its mean.

Hypothesis 3b predicts that, compared to the firm's net profit margin under the previous competitive strategy, the current net profit margin will be higher under the general differentiation strategy than under the "stuck in the middle" category (UN). T-test ($F=1.14$, separate variance $t\text{-value}=.19$, $p=.438$) analysis does not provide support for this hypothesis.

Hypothesis 3c postulates that, compared to the firm's market share under the previous competitive strategy, the current market share will be higher under the general differentiation strategy than under the "stuck in the middle" category (PM). T-test ($F=1.37$, separate variance $t\text{-value}=.11$, $p=.457$) analysis does not support this hypothesis.

Hypothesis 3d postulates that firms following a general differentiation strategy have increased their net profit margin more than "stuck in the middle" firms over the last three years (MC). T-test analysis could not be obtained because the "stuck in the middle" group showed no variance around its mean.

Hypothesis 3e predicts that firms following a general differentiation strategy have increased their market share more than "stuck in the middle" firms over the

last three years (PG). T-test analysis could not be obtained because the "stuck in the middle" group showed no variance around its mean.

Hypothesis 4a predicts that, compared to the industry's average performance, firms following a focus cost leadership strategy will obtain higher net profit margins than "stuck in the middle" firms (DF). T-test analysis could not be obtained because the "stuck in the middle" group showed no variance around its mean.

Hypothesis 4b. suggests that, compared to the firm's net profit margin under the previous competitive strategy, the current net profit margin will be higher under the focus cost leadership strategy than under the "stuck in the middle" category (UN). T-test analysis ($F=1.24$, separate variance $t\text{-value}=.12$, $p=.456 > .05$) does not support this hypothesis.

Hypothesis 4c predicts that, compared to the firm's market share under the previous competitive strategy, the current market share will be higher under the focus cost leadership strategy than under the "stuck in the middle" position (PM). T-test analysis ($F=1.81$, pooled variance $t\text{-value}=.29$, $p=.390 > .05$) does not support this hypothesis.

Hypothesis 4d predicts that firms following a focus cost leadership strategy have increased their net profit margin more than "stuck in the middle" firms over the last three years (MC). T-test analysis could not be obtained because the "stuck in the middle" group showed no variance around its mean.

Hypothesis 4e predicts that firms following a focus cost leadership strategy have increased their market share more than "stuck in the middle" firms over the last three years (PG). T-test analysis could not be obtained because the "stuck in the middle" group showed no variance around its mean.

Hypothesis 5a predicts that, compared to the industry's average performance, firms following a focus differentiation strategy will obtain higher net profit margins than "stuck in the middle" firms (DF). T-test analysis could not be obtained because the "stuck in the middle" group showed no variance around its mean.

Hypothesis 5b suggests that compared to the firm's net profit margin under the previous competitive strategy, the current net profit margin will be higher under the focus differentiation strategy than under the "stuck in the middle" position (UN). T-test analysis ($F=1.83$, pooled variance $t\text{-value}=.32$, $p=.383$) does not support this hypothesis .

Hypothesis 5c suggests that, compared to the firm's market share under the previous competitive strategy, the current market share will be higher under the focus differentiation strategy than under the "stuck in the middle" position (PM). T-test analysis ($F=2.00$, pooled variance $t\text{-value}=.52$, $p=.317$) does not support this hypothesis.

Hypothesis 5d predicts that firms following a focus differentiation strategy have increased their net profit margin more than "stuck in the middle" firms over the last three years (MC). T-test analysis could not be obtained because the "stuck in the middle" group showed no variance around its mean.

Hypothesis 5e proposes that firms following a focus differentiation strategy have increased their market share more than "stuck in the middle" firms over the last three years (PG). T-test analysis could not be obtained because the "stuck in the middle" group showed no variance around its mean value.

In conclusion, none of the statistics calculated--either by chi-square, Pearson's correlation, or the t-test--provides support to suggest that the generic competitive

strategies of cost leadership, differentiation, focus cost leadership, or focus differentiation provide better financial results than does the "stuck in the middle" position within the chemical industry. Only moderate support was found to suggest that general differentiators obtain better financial results in terms net profit margin. This implies that, even though the firms in the sample indicated that their competitive strategy resembles one of those proposed by Porter, their financial results does not correlate with these strategies.

XIII. MAIN ORGANIZATIONAL ACTIVITIES UNDER EACH COMPETITIVE STRATEGY.

One of the purposes of this research is the identification of significant relationships between the categories of strategy proposed by Porter (1980) and the main organizational activities of the firm. In other words, it is important to know whether the categories of strategy can be associated with specific functional activities within the organization. Expected validity of the strategy type was though by correlating them with organizational activities. For example, Table XIII.1 (correlation analysis was used for the 184 cases) does not indicate significant associations between the organizational strategies and the self-reported strategy. This implies that although the manager indicated that the firm's strategy resembles one of the categories proposed in this research, such strategy cannot be associated with any specific organizational activity. Thus, giving low validity to Porter's strategy-types.

Table XIII.1. Porter's categories of strategy correlated with main organizational activities.

	Cost leadership	Differentiation	Focus cost leadership	Focus differentiation	Stuck in the middle
General management (FAG)	.1529*	-.0380	-.1023	.0338	-.1005
Financial management (FAF)	-.0044	.0831	-.0802	-.0445	.0042
Marketing and selling (FMV)	.0747	.0194	.0031	-.0521	-.0960

Table XIII.1. (Continued)

Market research (FIM)	.1390*	-.0684	-.1268*	.0382	-.0002
Product research and development (FIDP)	.0511	-.1046	.0510	.0255	.0633
Engineering, basic and applied (FIBA)	-.0734	-.1058	.0919	.1993**	.0296
Production (FP)	-.0381	-.0921	.0400	.1143	.0887
Distribution (FD)	.0117	.0019	-.1219	.0756	.0193
Legal affairs (FAL)	.0122	.0214	-.0944	-.0168	.0751
Personnel (FRH)	.0842	-.0601	-.0918	-.0061	.0839

*prob < .05 **prob < .010.

Hypothesis 6a proposes that firms pursuing a general cost leadership strategy will show the following main organizational activities: general management, financial management, basic and applied engineering, production, and distribution. Correlation analysis did not support any of the expected relationships. The only significant relationship indicates that firms following a general cost leadership strategy do not emphasize market research.

Hypothesis 6b suggests that firms following a differentiation strategy will show the following organizational activities: in marketing and sales, market research, product research and development, and personnel. None of the expected correlations was significant at a .05 level.

Hypothesis 6c proposes that firms following a focus cost leadership strategy will show the following organizational activities: general management, financial management, basic and applied engineering, production, marketing and sales, and market research. Only the market research function was statistically significant ($p = .05$), it occurred in the predicted direction.

Hypothesis 6d suggests that firms following a focus differentiation strategy will show the following organizational activities: marketing and sales, market research, product research and development, basic and applied engineering, and personnel. Only the basic and applied engineering function was significant ($p = .005 < .01$), but in the opposite direction.

Hypothesis 6e predicts that "stuck in the middle" firms will not show statistically significant distinctive competencies. In fact none organizational activity was statistically significant.

In conclusion, no clear relationships were found between strategy and the organizational functions predicted to be associated with the implemented strategy. A possible explanation for this is that the firms in the industrial sectors sampled have not clearly identified their key organizational activities.

XIII.A. The capital goods industry.

Correlation analysis was used to measure the strength and direction between the categories of strategy and the organizational activities in the capital goods industry (see Table XIII.A.1).

Table XIII.A.1. Porter's categories of strategy correlated with main organizational activities in the capital goods industry.

	Cost leadership	Differentiation	Focus cost leadership	Focus differentiation	Stuck in the middle
General management (FAG)	.3000	-.3000	.	.	.
Financial management (FAF)	-.2582	.2582	.	.	.
Marketing and selling (FMV)	.3000	-.3000	.	.	.
Market research (FIM)	.4000	-.4000	.	.	.
Product research and development (FIDP)	.5477	-.5477	.	.	.
Engineering, basic and applied (FIBA)	-.7303*	.7303*	.	.	.
Production (FP)	-.5477	.5477	.	.	.
Distribution (FD)	-.2582	.2582	.	.	.
Legal affairs (FAL)	-.6364	.6364	.	.	.
Personnel (FRH)	-.1414	.1414	.	.	.

*prob. < .05

Only hypotheses 6a and 6b could be tested because all firms in the capital good industry were classified either in the general cost leadership or general differentiation categories.

Hypothesis 6a proposes that firms pursuing a general cost leadership strategy will show the following main organizational activities: general management, financial management, basic and applied engineering, production, and distribution. Firms competing under this strategy do not appear to emphasize on basic and applied engineering ($p=.031 < .05$). Other expected relationships and associations were not significant at a .05 level.

Hypothesis 6b suggests that firms following a differentiation strategy will show the following main organizational activities: marketing and sales, market research, product research and development, and personnel. None of the expected relationships showed significant associations. Differentiator firms appear to emphasize basic and applied engineering, presumably to differentiate their product.

XIII.B. The metal mechanic industry.

Correlation analysis was used to measure the strength and direction between the categories of strategy and the main organizational activities performed in the firm (see Table XIII.B.1).

Table XIII.B.1. Porter's categories of strategy correlated with main organizational activities in the metal mechanic industry.

	Cost leadership	Differentiation	Focus cost leadership	Focus differentiation	Stuck in the middle
General management (FAG)	.1127	.1209	-.1756	.0228	-.2110*
Financial management (FAF)	-.0200	.1649	-.1086	-.0597	-.0406

Table XIII.B.1 (Continued)

Marketing and selling (FMV)	.1435	.0700	-.1016	-.1408	-.0172
Market research (FIM)	.1154	.0346	-.2567*	.0025	.0424
Product research and development (FIDP)	.0275	-.0680	-.0832	.1050	.1079
Engineering, basic and applied (FIBA)	-.0487	-.0920	-.0248	.2489*	.0129
Production (FP)	.0605	.1384	.1384	.0345	-.0836
Distribution (FD)	.0082	.0415	-.1402	.0774	-.0551
Legal affairs (FAL)	.353	-.0763	-.0645	.1104	.0000
Personnel (FRH)	.0043	-.1120	.0557	.0129	.1217

*prob < .05

Hypothesis 6a proposes that firms pursuing a general cost leadership strategy will show the following main organizational activities: general management, financial management, basic and applied engineering, production, and distribution. Correlation analysis did not support any of the expected relationships.

Hypothesis 6b suggests that firms following a differentiation strategy will show the following organizational activities: in marketing and sales, market research, product research and development, and personnel. None of the expected correlations was significant at a .05 level.

Hypothesis 6c proposes that firms following a focus cost leadership strategy will show the following organizational activities: general management, financial management, basic and applied engineering, production, marketing and sales, and market research. Only the market research function was statistically significant ($p = .014 < .05$), it occurred in the predicted direction.

Hypothesis 6d suggests that firms following a focus differentiation strategy will show the following organizational activities: marketing and sales, market research, product research and development, basic and applied engineering, and personnel. Only the basic and applied engineering function was significant ($p=.017 < .05$), but in the opposite direction. This means that firms in the metal mechanic industry tend not to emphasize basic and applied engineering.

Hypothesis 6e predicts that "stuck in the middle" firms will not show statistically significant distinctive competencies. Firms in this situation appear to emphasize general management ($p=.037 < .05$), an unexpected outcome

In conclusion, no clear relationships were found between strategy and the organizational functions predicted to be associated with the implemented strategy. A possible explanation for this is that firms in the metal mechanic industry have not clearly identified their key organizational activities.

XIII.C. The foundry industry.

Correlation analysis was used to measure the strength and direction between the categories of strategy and the main organizational under study (see Table XIII.C.1).

Table XIII.C.1. Porter's categories of strategy correlated with main organizational activities in the foundry industry.

	Cost leadership	Differentiation	Focus cost leadership	Focus differentiation	Stuck in the middle
General management (FAG)	.1491	-.4667	.	.	.4880
Financial management (FAF)	-.4472	.0667	.	.	.4880

Table XIII.C.1. (Continued)

Marketing and sales (FMV)	.0925	.2067	.	.	-.4237
Market research (FIM)	.2774	.1240	.	.	-.5447
Product research and development (FIDP)	.6667*	.2981	.	.	-.4364
Engineering, basic and applied (FIBA)	-.5185	.6956*	.	.	-.3394
Production (FP)	-.2182	-.4880	.	.	1.00***
Distribution (FD)	-.1037	-.4174	.	.	.7467
Legal affairs (FAL)	-.8704**	.5449	.	.	.3419
Personnel (FRH)	.2182	-.2928	.	.	.1429

*prob. < .05 **prob < .01 ***prob < .001

Hypothesis 6a proposes that firms pursuing a general cost leadership strategy will show the following organizational activities: general management, financial management, basic and applied engineering, production, and distribution. None of the expected associations was significant at a .05 level. However, two unexpected relationships were significant. Firms competing under the cost leadership strategy appear not to emphasize basic and applied engineering ($p = .035 < .05$) but to focus on legal issues ($p = .002 < .02$). These two relationships appear not to have obvious explanations.

Hypothesis 6b suggests that firms following a differentiation strategy will show the following organizational activities: marketing and sales, market research, product research and development, and personnel. None of the expected

associations was significant at a .05 level. Only one significant association ($p=.028 < .05$) indicates that firms in the foundry industry competing under the general differentiation strategy appear not to emphasize basic and applied engineering.

Hypothesis 6c proposes that firms following a focus cost leadership strategy will show the following organizational activities: general management, financial management, basic and applied engineering, production, marketing and sales, and market research. No firm in the foundry industry was classified in strategy.

Hypothesis 6d suggests that firms following a focus differentiation strategy will show the following organizational activities: marketing and sales, market research, product research and development, basic and applied engineering, and personnel. Since no firms were classified in this category of strategy, no conclusions can be derived.

Hypothesis 6e predicts that "stuck in the middle" firms will not show statistically significant organizational activities. Two significant associations were found. "Stuck in the middle" businesses appear not to emphasize production ($p=.000 < .001$) or distribution functions ($p=.017 < .05$). This finding indicates that "stuck in the middle" firms are unable to control two basic organizational functions.

In conclusion, most of the hypothesized relationships were not sustained by correlation analysis. This means that no clear patterns characterize the competitive strategies with key organizational activities.

XIII.D. The construction supply industry.

Correlation analysis was used to measure the strength and direction between the categories of strategy and the main organizational activities under study (see Table XIII.D.1).

Table XIII.D.1. Porter's categories of strategy correlated with main organizational activities in the construction supply industry.

	Cost leadership	Differentiation	Focus cost leadership	Focus differentiation	Stuck in the middle
General management (FAG)	.0967	-.2688	.3274*	.1286	-.0702
Financial management (FAF)	-.0858	.3429*	-.1876	-.1876	-.1876
Marketing and sales (FMV)	-.1077	-.0750	.3055*	.1200	-.0655
Market research (FIM)	.1171	-.1734	.1996	-.2528	.1996
Product research and development (FIDP)	-.0173	-.0614	.0540	-.1296	.2376
Engineering, basic and applied (FIBA)	.0380	-.1518	.0831	.2847	-.1186
Production (FP)	.0161	-.1783	-.1204	.3913*	.1354
Distribution (FD)	.3571*	-.3444*	-.0458	.1488	-.0458
Legal affairs (FAL)	.2392	-.0425	.1794	-.5383***	.0000
Personnel (FRH)	.2034	-.0856	-.0669	-.0669	-.0669

*prob. < .05 **prob. < .01 ***prob < .001

Hypothesis 6a proposes that firms pursuing a general cost leadership strategy will show the following organizational activities: general management, financial management, basic and applied engineering, production, and distribution. Only one of the expected relationships was significant at a .05 level, but in the opposite direction. This means that firms in the construction supply industry competing under the cost leadership strategy tend not to emphasize distribution as an organizational activity.

Hypothesis 6b suggests that firms following a differentiation strategy will show the following organizational activities: marketing and sales, market research, product research and development, and personnel. None of the expected associations was statistically significant. One unexpected significant association ($p=.024 < .05$) suggests that firms in the construction supply industry tend not to emphasize the financial function.

Hypothesis 6c proposes that firms following a focus cost leadership strategy will show the following organizational activities: general management, financial management, basic and applied engineering, production, marketing and sales, and market research. Only two expected associations were significant, but in the opposite direction. Businesses in the construction supply industry competing under the focus cost leadership strategy tend not emphasize general management activities ($.029 < .05$) or on marketing and sales activities ($p=.039 < .05$).

Hypothesis 6d suggests that firms following a focus differentiation strategy will show distinctive competence in marketing and sales, market research, product research and development, basic and applied engineering, and personnel. None of the expected associations was statistically significant. However, two relationships

were significant. Firms competing under the focus differentiation strategy appear not to emphasize the production function ($p=.011<.05$) yet they do appear to emphasize the personnel activity ($p=.001$).

Hypothesis 6e predicts that "stuck in the middle" firms will not statistically significant organizational activities. In fact, none of the organizational activities was significant for the "stuck in the middle" position. This finding is consistent with the research hypothesis.

The above conclusions leads the researcher to suggest that, in the construction supply industry businesses have a general framework of reference or a competitive strategy but top managers do not show a pattern of organizational activities that clearly distinguish one competitive strategy from another.

XIII.E. The chemical industry.

Correlation analysis was used to measure the strength and direction between the categories of strategy and the main organizational activities of the firm (see Table XIII.E.1).

Table XIII.E.1. Porter's categories of strategy correlated with main organizational activities in the chemical industry.

	Cost leadership	Differentiation	Focus cost leadership	Focus differentiation	Stuck in the middle
General management (FAG)	.3038	-.0908	-.2036	-.0031	-.1026
Financial management (FAF)	.2339	-.2771*	.0264	-.0034	.1069
Marketing and sales (FMV)	.0715	.0353	-.0260	-.0059	-.1944

Table XIII.E.1 (Continued)

Market research (FIM)	.1949	-.2449*	-.0598	.2532*	-.0861
Product research and development (FIDP)	-.0215	-.1550	.2255	.0148	.0103
Basic and applied engineering (FIBA)	-.2056	-.1836	.2247	.1898	.2570*
Production (FP)	-.2080	.0313	.0059	.1060	.2374
Distribution (FD)	-.1344	.2746*	-.1709	-.0321	-.0222
Legal affairs (FAL)	.0334	-.203	-.2222	.1172	.2038
Personnel (FRH)	.3369	-.2244	-.1904	.0095	.1090

*prob. < .05

Hypothesis 6a proposes that firms pursuing a general cost leadership strategy will show the following organizational activities: general management, financial management, basic and applied engineering, production, and distribution. Only one of the expected associations was significant, but in the opposite direction. It shows that firms in this industry appear seem not emphasize general management ($p=.019 < .05$). Additionally, one unexpected association was found: firms appear not to emphasize personnel functions ($p=.010 < .05$).

Hypothesis 6b suggests that firms following a differentiation strategy will show distinctive competence in marketing and sales, market research, product research and development, and personnel. Only one expected association was significant. It occurred in the hypothesized direction and indicates that firms in the chemical

industry competing under the general differentiation strategy emphasizes market research activities ($p=.049<.05$). They also appear to focus on financial management ($p=.030<.05$), yet do not appear to emphasize distribution ($p=.031<.05$).

Hypothesis 6c proposes that firms following a focus cost leadership strategy will show the following organizational activities: general management, financial management, basic and applied engineering, production, marketing and sales, and market research. None of the expected associations was significant at a .05 level.

Hypothesis 6d suggests that firms following a focus differentiation strategy will show the following organizational activities: marketing and sales, market research, product research and development, basic and applied engineering, and personnel. Only one expected association was significant, but in the opposite direction. Firms in this industry appear not to emphasize market research.

Hypothesis 6e. predicts that "stuck in the middle" firms will not show statistically significant organizational activities. One organizational activity was significant: firms in the chemical industry appear not to emphasize basic and applied engineering ($p=.041<.05$).

In conclusion, no strong pattern which significantly associates organizational activities with strategies was identified in the chemical industry.

XIV. GENERAL MANAGER'S STRATEGY IMPLEMENTATION UNDER PORTER'S TYPOLOGY.

One of the major questions of this research addresses the issue of whether being a business owner or a professional general manager influences strategy implementation.

For the purpose of this research, it is important to know whether in the industries studied the person responsible for a strategy made a difference in the strategy implemented. In the table below, the reader can observe how the database breaks down into categories of persons responsible for strategy implementation.

Table XIV.1. Strategy vis-à-vis person responsible for its implementation.

	Business owner	Professional manager	Managerial Team
General cost leadership	34	12	3
General differentiation	60	24	2
Focus cost leadership	11	5	0
Focus differentiation	17	2	0
"Stuck in the middle"	8	2	0
None of the above	1	0	0

* 3 cases are missing from the 184-firm sample.

As Table XIV.1 shows in 130 of 181 (71%) firms in the sample, the business owner is also the person responsible for the implementation of the company's competitive strategy. It is important to note that three firms reported that the decision regarding the firm's competitive strategy is made jointly by the

professional manager and the business owner, i.e., by a managerial team. This category was not considered when designing the questionnaire initially; however, it was later included as an additional category.

Chi-square analysis was used to determine whether a significant association exists between the variables of interest. A value of 6.54425 ($p = .5865 > .05$) was obtained which means that strategy and the person responsible for its implementation are independent of each other. In addition, t-test analysis was obtained. Neither hypothesis 7a, which anticipated that a professional manager would implement a differentiation strategy and the business owner would implement a general cost leadership strategy ($F = 1.05$, pooled variance t-value = .30, $p > .05$) or hypothesis 7b, which suggested that a professional manager would implement a focus differentiation strategy while the business owner would implement a focus cost strategy ($F = 2.31$, pooled variance t-value = 1.53, $p > .05$), could be sustained.

XIV.A. The capital goods industry.

This section addresses proposition 7 for the capital goods industry. The table below shows how strategies are broken down by person responsible for their implementation.

Table XIV.A.1. Strategy vis-à-vis person responsible for its implementation in the capital goods industry.

	Business owner	Professional general manager
General cost leadership	5	0
General differentiation	3	3

As the reader can observe, in most (8 of 11) the business owner is responsible for the implementation of the competitive strategy. Since crosstabulation of the variables of interest resulted in a two-by-two matrix, Fisher's exact test was used. Based on the value obtained for the Fisher statistic ($p=.12121 > .05$) there appears to be no association between competitive strategy and person responsible for its implementation. T-test analysis could not be obtained because no professional general manager indicated that he was implementing a general cost strategy, and no firm in this industry indicated following a focus strategy.

XIV.B. The metal mechanic industry.

For the purpose of this research, it is important to know whether in the metal mechanic industry the person responsible for a strategy made a difference in the strategy implemented. In the table below, the reader can observe how the data break down into categories of person responsible for strategy implementation.

Table XIV.B.1. Strategy vis-à-vis person responsible for its implementation in the metal mechanic industry.

	Business owner	Professional manager	Managerial Team
General cost leadership	14	2	2
General differentiation	26	6	1
Focus cost leadership	5	2	0
Focus differentiation	11	0	0
"Stuck in the middle"	5	0	0
None of the above	1	0	0

As Table XIV.B.1 shows in 62 of the 75 firms in the sample the business owner is also the person responsible for the implementation of the company's competitive strategy. It is important to note that one firm reported that the decision regarding the firm's competitive strategy of the firm is made jointly by the professional manager and the business owner, i.e., by a managerial team. This category was not considered when designing the questionnaire initially; however, it was later included as an additional category.

Chi-square analysis was used to determine whether a significant association exists between the variables of interest. A value of 8.28422 ($p.6011 > .05$) was obtained which means that strategy and the person responsible for its implementation are independent of each other. T-test analysis does not support hypothesis 7a ($F=1.35$, pooled variance $t\text{-value}=.54$, $p > .05$). T-tests could not be obtained for hypothesis 7b because no professional general manager indicated that he was following a focus differentiation strategy.

XIV.C. The foundry industry.

It is interesting to note that in the foundry industry all firms sampled reported that the person responsible for the firm's strategy was the business owner (see Table XIV.C.1).

Table XIV.C.1. Strategy vis-à-vis person responsible for its implementation in the foundry industry.

	Business owner
General cost leadership	3
General differentiation	7
Focus differentiation	2
Stuck in the middle	1

The fact that only one category of person responsible for strategy was present in the foundry industry leads the researcher to the suggestion that, in this industry, the responsibility for business strategy belongs to the business owner and that most firms pursue a general differentiation competitive strategy. The reader should remember that data were collected from 14 of the 19 (74%) firms registered in the foundry industry, thus providing a relatively high level of generality. T-test analysis could not be used because no firm indicated that a professional general manager was responsible for the business strategy.

XIV.D. The construction supply industry.

The hypothesis that the position of the person responsible for a firm's strategy influences strategy implementation was also tested for the construction supply industry (see Table XIV.D.1).

Table XIV.D.1. Strategy vis-à-vis person responsible for its implementation in the construction supply industry.

	Business owner	Professional manager	Managerial team
General cost leadership	2	6	1
General differentiation	12	7	1
Focus cost leadership	1	1	0
Focus differentiation	2	0	0
"Stuck in the middle"	1	1	0

The reader can observe from the above table that in 18 of the 35 firms in the sample (51%) the business owner is the person responsible for strategy. Moreover, regardless of who has that responsibility, the general differentiation strategy appears to be implemented most often. It should also be noted that two firms indicated both the business owner and the professional general manager are responsible for the firm's strategy. Unfortunately, chi-square (5.90031, $p=.6584$) does not confirm that an association exists between strategy and the person responsible for its implementation. Hypothesis 7a proposed that a professional manager will implement a general differentiation strategy, while the business owner will implement a general cost leadership strategy. T-test analysis ($F=1.15$, pooled variance $t\text{-value}=1.86$, $p<.05$) proved the opposite argument to be true. This means that a professional manager will implement a cost leadership strategy instead of a differentiation strategy--this was an unexpected result. Hypothesis 7b could not be tested because no professional general manager indicated following a focus differentiation strategy.

XIV.E. The chemical industry.

The research hypothesis was also tested for the chemical industry in order identify any significant associations between the person responsible for implementing a firm's strategy and the strategy implemented. A chi-square value of 1.14933 was obtained. Since its significance level of .8864 considerably exceeded the accepted significance level set for this research (.05), no argument exists to suggest the plausibility of this association.

Table XIV.E.1 below shows how the categories of strategy break down by person responsible for their implementation.

Table XIV.E.1. Strategy vis-à-vis person responsible for its implementation in the chemical industry.

	Business owner	Professional manager
General cost leadership	10	4
General differentiation	12	8
Focus cost leadership	5	2
Focus differentiation	2	2
"Stuck in the middle"	1	1

Although no significant associations were found, the reader can observe that in 30 of 47 cases (64%), the business owner was responsible for the firm's strategy. Also, in 20 of 47 cases, strategy was based on general differentiation. T-test analysis did not support hypotheses 7a ($F=1.15$, pooled variance $t\text{-value}=.67$, $p>.05$) or 7b ($F=1.40$, pooled variance $t\text{-value}=.66$, $p>.05$).

It was originally assumed, based on the review of academic literature (i.e. Berle and Means, 1967), that the business owner or professional manager status would influence the category of strategy implemented. In this research this was not the case, probably because strategy implementation is most often the responsibility of the business owner. This means that the variances of the person responsible for the business strategy and the strategy implemented are not statistically significant.

XV. GENERAL MANAGER'S EDUCATIONAL LEVEL UNDER PORTER'S TYPOLOGY.

This chapter addresses the question of whether the degree of formal education of the person responsible for the firm's competitive strategy influences strategy implementation. This question will be answer through the following hypotheses.

Hypothesis 8a suggests that: highly educated decision-makers, having at least a bachelor's degree, will implement a general differentiation strategy, while less educated decision makers, with at most a high school diploma, will implement a general cost strategy.

Hypothesis 8b proposes that highly educated (having at least a bachelor's degree) decision-makers will implement a focus differentiation strategy, while less educated (having at most a high school diploma) decision-makers will implement a focus cost strategy.

In order to provide a clearer idea of how the data broke down into categories of formal education, Table XV.1 shows a crosstabulation of competitive strategies by level of formal education using the whole database.

Table XV.1. Strategy by educational level of the person responsible for its implementation.

	Cost leadership	Differentiation	Focus cost leadership	Focus differentiation	Stuck in the middle	None
Doctoral degree	1	1	0	0	0	0
Unfinished doctoral degree	0	0	0	0	0	0
Master's degree	7	20	5	2	1	0
Unfinished master's degree	5	3	2	0	1	0

Table XV.1 (Continued)

Bachelor's degree	30	48	8	13	5	1
Unfinished bachelor's degree	4	9	0	0	2	0
High school	3	3	1	1		0
Unfinished high school	0	0	0	0		0
Junior high or elementary school	0	2	0	3		1
No formal education	0	0	0	0	1	0

As can be observed, 86 of the 183 (47%) firms in the sample follow a general differentiation strategy and 105 of the 183 (57%) top decision-makers have one bachelor's degree. In the following table, educational level was grouped by the categories of low and high levels of formal education.

Table XV.2. Strategy by grouped educational level of the person responsible for its implementation.

	High level of formal education	Low level of formal education
General cost leadership	43	7
General differentiation	73	13
Focus cost leadership	15	1
Focus differentiation	15	4
"Stuck in the middle"	7	3
None of the above	1	1

As the reader can observe, both categories of managers--those with high and low levels of education--implemented a general differentiation strategy most frequently. Even though a chi-square value of 3.19833 and a significance level of

.5252, far above the standard of .05, do not support the suggestion that level of education and strategy implement are associated, is interesting to note that most firms compete under the general differentiation category regardless of decision-maker's education. T-test analysis leads to the rejection of hypothesis 8a ($F=1.36$, pooled variance $t\text{-value}=.09$, $p>.05$). T-tests supported the argument opposed to that stated in hypothesis 8b, that is, support was found to suggest that less educated decision-makers will implement a focus differentiation strategy instead of a focus cost strategy. This finding was unexpected and potential explanations would be on the line of industry knowledge or managerial expertise, instead of level of formal education.

XV.A. The capital goods industry.

In the capital goods industry, every person responsible for the business strategy reported having at least a bachelor's degree (see Table XV.A.1).

Table XV.A.1. Strategy by educational level of the person responsible for its implementation in the capital goods industry.

	High level of education
General cost leadership	5
General differentiation	6

Chi-square analysis or other statistics were not appropriate because all individuals responsible for the firms' strategies were classified in the highly-educated category. However, this in itself is revealing. Every top manager in the sample--23% of the population--has at least one college degree. Moreover, even though in this case the association was not significant, the general differentiation

strategy was implemented in 6 of 11 cases (55%) which is consistent with the entire sample, regardless of industry sector.

XV.B. The metal mechanic industry.

The hypothesis suggesting that a difference exists in strategy depending on the level of formal education of the person responsible for its implementation, was also tested in the metal mechanic industry. The findings are reported in the table below.

Table XV.B.1. Strategy by educational level of the person responsible for its implementation in the metal mechanic industry.

	High level of formal education	Low level of formal education
General cost leadership	14	5
General differentiation	25	8
Focus cost leadership	6	1
Focus differentiation	8	3
"Stuck in the middle"	2	3
None of the above	1	0

As the reader can observe, both categories of managers--those with high and low levels of education--implemented a general differentiation strategy most frequently. Even though a chi-square value of 3.88366 and a significance level of .5663, far above the standard of .05, lead to the rejection of the hypothesis, is interesting to note that most firms compete under the general differentiation category regardless of decision-maker's education. T-test analysis did not support hypothesis 8a ($F=2.14$, pooled variance $t\text{-value}=.65$, $p>.95$) and hypothesis 8b ($F=4.22$, pooled variance $t\text{-value}=.77$, $p>.05$).

XV.C. The foundry industry.

Our research hypotheses were also tested in the foundry industry in order to learn whether a significant difference in strategy implementation can be expected depending on the level of formal education of the person responsible. Table XV.C.1 shows how the data in the foundry sector was broken.

Table XV.C.1. Strategy by educational level of the person responsible for its implementation in the foundry industry.

	High level of formal education	Low level of formal education
General cost leadership	3	0
General differentiation	4	3
Focus cost leadership	0	0
Focus differentiation	1	1
"Stuck in the middle"	1	0
None of the above	0	1

As the reader can observe, both categories of managers in the sample (74% of the population) implemented the general differentiation category most frequently. Unfortunately, chi-square analysis does not provide statistical support to assure that these associations are significant ($4.35556, p = .3600 > .05$). T-test analysis does not provide support for hypothesis 8a ($F = 9.71$, pooled variance $t\text{-value} = .96, p > .05$). Hypothesis 8b could not be tested because the focus cost strategy was not present in this industry.

XV.D. The construction supply industry.

The hypotheses suggesting that a difference in competitive strategy exists depending on the general manager's level of formal education were tested in the construction supply industry. Table XV.D.1 shows how the data broke down.

Table XV.D.1. Strategy by educational level of the person responsible for its implementation in the construction supply industry.

	High level of formal education
General cost leadership	9
General differentiation	20
Focus cost leadership	2
Focus differentiation	2
"Stuck in the middle"	2

As the reader can observe, the category "low level of formal education" is not present in this industry, indicating that every top decision-maker has at least one college degree. It should also be noted that the most highly educated managers correspond to the "general differentiation" category. Since the crosstabulation of educational level by competitive strategies categories resulted in a 1-by-5 matrix, chi-square and t-test analyses could not be obtained. However, the high frequency of the "general differentiation category" is consistent with that found when strategies were crosstabulated with the education variable for sectors combined.

XV.E. The chemical industry.

The hypotheses that predicted a difference strategy depending on the level of formal education of the person responsible for its implementation was tested using

chi-square and t-test analysis. Table XV.E.1 shows a crosstabulation of the strategies by level of formal education.

Table XV.E.1. Strategy by educational level of the person responsible for its implementation in the chemical industry.

	High level of formal education	Low level of formal education
General cost leadership	12	2
General differentiation	18	2
Focus cost leadership	7	0
Focus differentiation	4	0
"Stuck in the middle"	2	0

Chi-square analysis does not indicate significant associations between the categories of strategy and formal education (1.86595 , $p = .7604 > .05$), meaning that educational level does not influence strategy implementation. T-tests do not support hypothesis 8a ($F = 1.84$, pooled variance $t\text{-value} = .12$, $p > .05$) or 8b ($F = 1.05$, pooled variance $t\text{-value} = 1.51$, $p > .05$).

Based on some studies (i.e. Gupta and Govindarajan, 1984; Miller and Toulouse, 1986; and Resenos, 1980) that report associations between certain managerial characteristics and the business strategy, it was anticipated in this research that the level of formal education of the top decision-maker would be associated with the strategy implemented. However, statistical analyses do not support this rationale. This is probably due to the fact that not much variance exists in the level of formal education. In other words, variance exists in the category of strategy implemented but not in the level of formal education categories.

XVI. CONCLUSIONS AND IMPLICATIONS.

Research was conducted in order to advance our knowledge in the field of business-level strategy in five sectors of the manufacturing industry of the San Luis Potosí metropolitan area. The capital goods, metal mechanic, foundry, construction supply, and chemical industries were selected because they account for roughly 56% of the manufacturing industry gross production within the state of San Luis Potosí. Furthermore, the state exhibits strong competitive advantages for the consolidation of a well-developed manufacturing industry (ITESM-SLP-CEE-1993). Thus, an in-depth understanding of the business strategies followed by the top decision-makers was particularly appealing.

Two well-accepted typologies of strategy--those of Miles and Snow (1978) and Porter (1980)--were selected to provide the conceptual framework for investigating the relationship between a firm's strategy and its financial performance, main organizational activities, and the characteristics of the general manager (degree of formal education and status as business owner or professional manager). The literature review chapter provided the foundations from which the research was designed, and hypotheses were developed in order to operationalize the proposed conceptual model.

A questionnaire was personally administered to the general managers of 184 businesses over a five-week period; data was processed using the Statistical Package for the Social Sciences (SPSS), and findings have been reported throughout these chapters. The following sections also report findings and discuss the implications of those considered most significant.

XVI.A. Conclusions and implications of general findings.

An important initial result indicates that 75% of the sampled firms are either micro or small-sized. One implication of this has to do with the concept of economies of scale. This theory indicates that if fixed costs can be divided by a larger number of units produced, total unitary cost will be reduced, thus giving the product an additional competitive advantage. Also, it is interesting to note that the sectors studied contribute 56% to the GNP of the manufacturing industry of San Luis Potosí. This provides a good characterization of the manufacturing setting of metropolitan San Luis Potosí.

Another interesting finding relates to the educational level of the top decision maker. Most top managers (57%) hold one bachelor's degree and 26% have at least a master's degree. This is encouraging because it reveals that industrial San Luis Potosí is managed by educated executives and implies that potential exists--at least in terms of level of formal education--to improve the competitive position of the firms.

In industrial San Luis Potosí, the business owner is responsible for its strategy (71% of the cases), which can be explained in terms of agency cost theory. This theory proposes that the principal-agent relationship incurs some costs: monitoring costs, bonding costs, and deadweight losses associated with any relationship between agents and principals. The key point here is that, given the average size of the businesses in San Luis Potosí, there is no reason to engage an agent to manage a firm. This implies that, as long as most firms are small, the strategic apex will be formed by the business owner and members of his or her family.

In relation to financial performance, most managers sampled indicated that their firms obtain average or constant results, and when this is not the case, more firms indicated that their financial performance has improved compared to those claiming theirs has worsened. This finding increases in importance when related to strategies. For example, it was found that prospectors or general differentiators obtain better results (in terms of net profit margin and market share) than do other categories of strategy.

The frequency with which organizational activities appeared also shed some light on our effort to understand firms in industrial San Luis Potosí. Activities such as marketing and sales, production, distribution, and general and financial management were strongly emphasized. These activities, however, appear to be more oriented towards the day-to-day operation of the business. Other activities such as market research, product research and development, basic and applied engineering, and human resources received average emphasis, these activities appear to be more strategic-oriented. This has important implications for both the academic and practitioner audiences. Activities such as market research were found to be related to prospector or general differentiator strategies, which happen to provide better financial results. Even though establishing causality was not the purpose, some indication of relationship was found in this research.

XVI.B. Conclusions and implications of Miles and Snow's typology.

Evidence was found to suggest that Miles and Snow's typology of strategic orientation is a useful framework for categorizing the strategies followed by businesses in the sectors studied. Only three firms (1.63%) from the sample reported to have strategies different from those proposed by Miles and Snow. All

but one sector--the construction supply industry--reported having at least one firm within each category of strategic orientation. This provided support for the hypothesis that predicted all strategic orientations would be present in each industrial sector. In the construction supply industry, the reactor position failed to be present. It is important to note that 60 of the 184 firms (33%) pursue a defender orientation and 55 (30%) follow a prospector strategic orientation.

When the entire database was analyzed, several associations were found to suggest that prospector firms have obtained better net profit margins compared to the industry's average. Also, prospectors have increased their market share compared to the results from the previous strategy, and they have increased their market share over the last three-year period. In contrast, defenders have decreased their net profit margins compared to the industry's average, and they have decreased their market share compared to the results from the previous strategy and over the last three-year period. Defenders, analyzers, and prospectors outperform reactors in all financial indicators: net profit margin compared to the industry's average, net profit margin and market participation over the last three years, and net profit margin and market share compared to the results obtained under the previous strategy. These findings have the following important managerial implication: managers will be better off should they follow prospector strategies as opposed to defender strategies.

In relation to the emphasis placed on the main organizational activities, prospectors emphasize marketing and sales, market research, product research and development, and basic and applied engineering, while defenders do not emphasize any of those organizational activities. Interestingly, prospectors emphasize certain

activities that allow them to be first in the industry, and they are obtaining better financial results than other categories. This implies that managers now rely on organizational activities that support a prospector orientation.

No significant relationships were found between the influence of ownership or professional management status (business owner or professional manager) or level of formal education and the strategy implemented. However, we have learned that most top managers are highly educated individuals, and the size of most businesses (micro or small-sized) does not justify bearing the agency costs discussed in previous chapters.

We have also learned that in the capital goods industry, firms pursuing a prospector orientation have increased their net profit margin over the last three years, while reactor firms have decreased their net profit margin and lost market share over the same period. Although few significant associations were found, some support exists for the argument that prospector firms obtain better financial results than reactors.

Similar to the capital goods industry, the metal mechanic industry showed favorable financial performance under the prospector strategy. Prospector firms reported having obtained higher net profit margins than the industry's average, and compared to their previous strategic orientation, prospectors also reported having improved both their net profit margin and market participation. Prospectors' market share over the last three years has also increased. Defenders have decreased their market share, and reactors have obtained unfavorable results in their net profit margin. These findings lead the researcher to argue that prospector firms tend to obtain favorable financial results in the metal mechanic industry.

In the foundry industry, both prospector and defenders showed significant associations with the variable measuring the firm's net profit margin compared to the industry's. Interestingly prospectors appear to obtain above-average net profit margin for the industry, while defenders perform below average.

As previously mentioned, the reactor position was not present in the construction supply industry. However, some significant associations were found for the strategies which were present. Prospectors have increased their market participation when compared to their previous strategy and to market changes over the last three years. Defender firms have not only experienced the opposite effect, they have also decreased their net profit margin over the same period. Analyzer firms have obtained favorable results in net profit margins compared to their previous strategy, and in net profit margins and market participation over the last three years.

In the chemical industry, prospector firms have also obtained above-average net profit margins, and reactor firms have lost market participation over the last three years. Although few significant associations were found in the chemical sector, it should be noted that a prospector orientation provides better financial results than does a reactor position.

In conclusion, in relation to Miles and Snow's (1978) categories of strategy and financial performance, this research has found that the prospector and analyzer orientations tend to render favorable results as measured by market share and net profit margin. Significant associations were found which suggests that defender and reactors tend to obtain unfavorable financial results. These findings have important implications for both managers and scientists. For the former, they now have a

substantiated argument for pursuing more proactive strategies (such as prospector or analyzer). For the latter, the conceptual framework relating Miles and Snow's (1978) typologies of strategic orientations to certain financial performance indicators proposed in this research has proved to be a useful paradigm for the study of business-level strategies and financial performance.

The relationship between each strategy and certain organizational activities was also investigated in order to learn whether, in the industries studied, a strategy could be characterized by one or more organizational activities.

In the capital goods industry, no significant associations were found to suggest that a clear pattern exists between strategy and organizational activities selected.

Prospector firms competing in the metal mechanic industry tend to emphasize market research, product research and development, and marketing and sales. This finding is encouraging because these activities appear to be in accordance with an orientation that can be labeled as proactive, thus implying market orientation. The analyzer and defender categories in the metal mechanic sector did not show significant associations. However, an interesting comparison can be made between prospectors and reactors: prospectors appear to emphasize product research and development, while reactors do not.

In the foundry industry, prospector firms tend to emphasize basic and applied engineering and legal affairs. Interestingly, defenders tend not to emphasize those activities. Clearly identifiable organizational activities were not ascertained in the foundry industry; only the prospector category showed a significant association.

In the construction supply industry, prospector firms appear to emphasize product research and development, market research, and basic and applied

engineering. This is in contrast to defenders who do not emphasize basic and applied engineering or market research.

Similar to the foundry industry, prospectors in the chemical sector tend to emphasize basic and applied engineering, while analyzers do not. Defender firms tend to emphasize legal affairs and personnel. In the chemical sector, it was found that reactors do not control the fundamental activities of a business, i.e., they do not emphasize general management, market research or personnel.

In conclusion, although only a few of the expected groupings of the organizational activities under the different categories of strategic orientation held up, prospector firms in the five sectors studied appear to have more clearly defined organizational activities than those with other strategic orientations. It was found, for example, that while prospectors emphasize a specific activity, other categories tended not to emphasize it. This means that prospectors more clearly define their main organizational activities than firms with other strategic orientations. Also, these organizational activities tend to fall into two complementary areas: market research and engineering. This is not surprising if we take into account that, with the first organizational activity, the firm scans the potential market which, in turn, influences the manufacturing activity. Managerial implications of these findings are: 1) managers should be encouraged to clarify the main organizational activities of their firms, 2) managers should place special emphasis on market research, product research and development, and marketing and sales (note again that market and engineering-related activities are emphasized), and 3) managers should be encouraged to pursue prospector-type (more aggressive) strategies which appear to provide better financial results and are more clearly associated with strategic-

oriented organizational activities, such as market research and product research and development.

The person responsible for a firm's strategy--the business owner or professional manager--was also studied. It was found that in all five sectors, the business owner is the person responsible. This indicates that, in industrial San Luis Potosí, most businesses are family-owned. Although we know that the business owner is responsible for the firm's strategy, a significant association between owner and a specific strategic orientation was not found. This means that the owner of the business may implement any of the proposed strategies or take a reactor position. Finally, it is worth noting that in some firms, the responsibility for strategy implementation is not left to the business owner or professional manager; strategic decisions are made by a "managerial team" composed of both the owner and professional manager.

The last variable studied in this research was the level of formal education of the person responsible for deciding strategy. It was important to learn whether the educational level of this individual was significantly associated with the strategy implemented. In the five sectors considered, most top decision makers were classified as "highly educated." This is due to the fact that "bachelor's degree"--the academic degree held by most decision makers--was considered a high level of formal education for the purpose of this research. Nonetheless, no significant associations were found between top decision maker's level of formal education and a firm's strategic orientation.

XVI.C. Conclusions and implications of Porter's typology.

Porter's typology of competitive strategies appears to be applicable in the industrial sectors studied throughout this research. Only two firms from a sample of 184 (1%) did not identify with Porter's typology. This means that Porter's generic strategies can serve as a general framework for the study of business strategy in San Luis Potosí.

It is important to note also that 50 of 184 firms (27%) pursue a cost leadership strategy and 86 (47%) pursue a general differentiation strategy. In the capital goods industry, only two categories of strategy--general cost leadership and general differentiation--are present. The reader should note that these categories are broad in scope, meaning that firms in the capital goods sector tend to serve a wide market base through two different approaches. In the metal mechanic industry, all five categories are present, including the "stuck-in-the-middle" position. Only one firm in this sector could not be classified into any of Porter's strategies. In the foundry industry, focus cost leadership was not present, and one firm reported not following any of Porter's generic strategies. In the construction supply industry, all of Porter's categories are present. Finally, in the chemical sector all of Porter's categories are present as well, including "stuck-in-the-middle." Since we now know that Porter's competitive strategies are useful as a framework for the study of business-level strategies, it is important to relate the competitive strategies to the financial performance indicators, main organizational activities, top decision-makers' educational level and status as business owner or professional manager. The following paragraphs discuss the corresponding conclusions and implications.

The entire database was analyzed in order to capture the "broad picture" before examining the details of each industry. It was found that firms pursuing a general differentiation strategy have increased their market share compared to the results obtained under the previous strategy. This is in sharp contrast with firms following a focus differentiation strategy, which have decreased theirs. "Stuck-in-the-middle" firms have reduced their net profit margin and their market participation compared to their previous strategy. These findings have important managerial implications: 1) managers should be encouraged to follow strategies that differentiate their product from the products of their competitors and try to capture a broad market base, instead of a narrow market segment, and 2) a lack of strategic definition is by no means recommendable.

Unfortunately, no clear relationships were found between Porter's strategies and the main organizational activities. A possible explanation may be that sampled firms have been able to characterize their competitive strategy, but have not been able to operationalize their strategy in organizational tasks. At this point, managers are encouraged to think about the key organizational activities that better match the chosen strategy.

In relation to the influence of business owner or professional manager status on the strategy implemented, it was found that most times (72%) the business owner is the person having the responsibility for the firm's strategy. This issue has its explanation in the agency-cost theory. Most firms in industrial San Luis Potosí are either micro or small-sized, thus there is no reason that justifies having to pay those costs and engage in a principal-agent relationship.

It was also found that the general differentiation strategy is usually chosen (47% of the time). This should be of interest to managers as it was found that the general differentiation strategy appears to render better financial results (as discussed above). However, no clear organizational strategies were identified that support this strategy. Finally, it was found that regardless of the level of formal education, the general differentiation strategy was most often chosen.

In the capital goods industry, no clear patterns can be identified. Only moderate support (the observed significance was slightly above the accepted significance level) exists to suggest that firms following a general differentiation strategy have increased their net profit margin compared to their previous strategy, while firms competing under a general cost leadership strategy have tended to decrease theirs.

In the metal mechanic industry, firms pursuing a general differentiation strategy appear to obtain better financial results than those following a focus differentiation strategy or classified as "stuck in the middle." Further analyses in the metal mechanic industry reveal that, as expected, a general cost leadership strategy provides better financial results than does the "stuck-in-the-middle" position. Firms pursuing a general differentiation strategy also appear to obtain better financial results than those firms which are "stuck in the middle." In four of the five financial indicators, evidence was not found to suggest that firms competing under a focus cost leadership strategy perform better than "stuck-in-the-middle" firms and in three of the five financial indicators, evidence was not found to suggest that the focus cost leadership strategy provided better results than did the "stuck-in-the-middle" position. This seems to imply that the general competitive strategies provide more desirable results than do the focused competitive strategies.

In the foundry industry, only one significant association was determined. It appears that firms competing under a focus differentiation strategy perform below the industry's average. This result is similar to the one found in the metal mechanic industry.

Interestingly, in the construction supply industry, firms following a focus differentiation strategy have obtained better net profit margins compared to the industry's average, and firms competing under a cost leadership strategy have lost market share over the last three years. This may imply that the firms in this industry obtain better results if they select a market niche (e.g., housing for high-income families) than if they choose to compete on a cost basis covering a wide range of customers.

In the chemical industry, financial performance appears to be independent from the strategy selected.

In conclusion, in the sectors studied a differentiation strategy appears to provide more desirable results than do others. In the construction supply industry, it is clear that a focus differentiation strategy provides better financial results than a cost leadership strategy. From the discussion above, arguments can be made to suggest that a differentiated or outwards-oriented strategy provides better results than a conservative or inwards-oriented competitive position.

The relationship between competitive strategy and a firm's organizational activities was also investigated, and implications of the major findings are discussed here. In the capital goods industry, no clear relationships between the general cost leadership strategy and a firm's organizational activities were identified. We know, however, that firms competing under this strategy tend not to emphasize basic and

applied engineering. This finding becomes relevant when compared to the only significant relationship under the differentiation strategy. General differentiator firms tend to emphasize basic and applied engineering, as opposed to general cost leadership firms, which do not. This may imply that general differentiator firms pursue this strategy due to their own engineering activities.

In the metal mechanic industry, no clear association between the several organizational activities and a firm's strategy appears to exist. We only know that firms competing under a focus cost leadership strategy tend to emphasize market research activities, an expected result which implies that these firms scan and search for market niches through research.

Similar to the metal mechanic industry, in the foundry, construction supply and chemical industries, there are no identifiable organizational activities that clearly characterize a competitive strategy.

In conclusion, the reader can observe the lack of a consistent pattern of organizational activities in the sectors studied. This may imply that the corresponding firms have not been able to identify the fundamental organizational activities that support the strategy implemented. In other words, firms in San Luis Potosí may have been able to identify their generic competitive strategy, but they may not have been able to identify the critical organizational activities which characterize it.

The relationship between the person responsible for a firm's strategy and the strategy itself was also investigated. It was found that in most cases the person responsible is the business owner. As discussed in the section on Miles and Snow, the fact that the owner is responsible for the firm's strategy offers a good idea as to

organization within the manufacturing industry in San Luis Potosí. In other words, firms tend to consist of small to medium-sized, family-owned businesses in which decisions are usually made by the senior family member. In most cases, general differentiation was the strategy implemented. This was also true in the cases where a professional general manager was responsible for strategy. This finding implies that, whoever the individual responsible for strategy, there is a tendency to select general differentiation.

The last variable investigated was the possible association between the top manager's level of formal education and the strategy implemented. Most top managers hold a bachelor's degree and tend to implement a general differentiation strategy. However, managers who were classified as having a low level of formal education (a high school diploma at most) also tend to implement a general differentiation strategy. This finding implies that, regardless of top manager's educational level, a tendency exists to pursue a general differentiation strategy.

XVI.D. Final comments on conclusions and implications.

This research has shed some light on our effort to advance knowledge in the field of competitive strategy. Managers and academicians now have two typologies of business-level strategies that promise positive outcomes. For the former, Miles and Snow's and Porter's typologies can serve as a scheme or frame of reference for strategic planning. For the latter, these two typologies have proved useful for conducting research.

These typologies can be associated with financial performance results. It appears that prospector or differentiator strategies render better financial outcomes. At this

point, managers are encouraged to question their firm's current strategy and see if a better match between strategy and financial results can be found.

This research has also determined that certain organizational activities are associated with a firm's strategy. For example, prospectors emphasize market research or product research and development. This should encourage managers to think about the organizational activities they are emphasizing and whether these activities match the most appropriate strategy.

Finally, this study should encourage academicians to conduct additional research in the field of business strategy in order to assist managers in industrial San Luis Potosí in making better decisions for their firms. Answers to important questions have been found here. Yet at the same time, this research opens new questions deserving answers. Some of these questions will be discussed in the following chapter.

XVII. LIMITATIONS OF THE STUDY AND SPECULATIONS FOR FUTURE RESEARCH.

XVII.A. Limitations of the study.

It must be acknowledged that the present study has certain limitations. Perfection is the goal towards which many of us strive, yet it is an impossible goal to reach. However, if we focus our efforts on that goal, chances are that we will come closer to attaining it than if we do not.

One limitation of this study is that the researcher used the self-typing method to characterize an organization's strategy. Snow and Hambrick (1980) found two advantages in this method: 1) the top manager's perceptions and opinions largely determine the organization's strategy (at least its intended strategy), and 2) relatively large databases can be generated for hypothesis testing. However, Snow and Hambrick also recognize that this method has several shortcomings, one of them is that many managers believe that their organization is unique, and therefore they resist attempts to classify it.

Snow and Hambrick also report that Hambrick (1979) found executives generally report their organizations' intended strategies, as opposed to emergent or realized strategies. In instances when no intended strategy exists, an executive may create one for the benefit of the researcher.

Additional limitations of this research come from the fact that the researcher asked managers to assess strategy, thus external or objective confirmation of their answers is not possible. Also, managers were asked to compare the present financial performance of the firm with that obtained under past business strategy. However, no information was obtained about the past strategy of the firm. This makes it

impossible to know whether the past strategy influenced somehow the current business strategy.

Even though the questionnaire provided descriptions of the categories of strategy and not the name of the strategy, some managers indicated that one typology resembled that proposed by Porter. To an extent, this fact could have biased their answers. This probably explains why only a few significant results were obtained with this typology.

In the capital goods industry, a low percentage of responses was obtained (23%). This issue limits the external validity of the findings.

Even though this research has shed some light about business strategy in manufacturing San Luis Potosí, the validity and generalizability of these results should be taken with caution and in the context of an exploratory research because, on average, measures of associations such as chi-square and correlation coefficients have low correlation coefficients.

Finally, it should be noted that the firm's strategy and financial performance, main organizational activities, and categories of ownership and education were linked primarily through correlation analysis and cannot be interpreted as causally related. However, these relationships have provided an initial step for the study of strategy in the manufacturing sector of San Luis Potosí.

XVII.B. Speculations for future research.

As expressed in the introductory chapters of this report, research in the area of business strategy in San Luis Potosí is, at most, scarce. Thus, this study has contributed to the much-needed knowledge among practitioners and academicians

on how strategic frameworks relate to financial performance and other variables of interest in that city. It is true that businessmen are aware of typologies of strategy; Porter's generic strategies seem to be especially familiar to top managers. However, no previous study had been done in the manufacturing setting of San Luis Potosí that empirically applies two typologies of generic strategy.

The research reported here is an initial step that may serve as a foundation for additional studies in the area of business strategy. Suggestions for future research that may contribute to advancing our knowledge and assists decision makers in the implementation of business strategies are presented here.

1. This study can be replicated in other sectors of the manufacturing industry in San Luis Potosí, such as the textile, food processing and furniture industries since these three sectors are of major importance to the state's economy.
2. This study can also be replicated in other manufacturing settings of México. A study recently finished at ITESM-SLP (ITESM, 1993) compared San Luis Potosí's industrial development to that of two other states: Aguascalientes and Nuevo León. In that study, it was reported that only fifteen years ago San Luis Potosí had a much healthier economy than Aguascalientes; however, the opposite is true today. Obviously, a number of factors--political issues, resource availability, cultural issues, education, etc.--may explain this difference. One factor, however, may be the strategies implemented by the top decision makers. It would be of interest to undertake the same type of research in the state of Aguascalientes in order to find similarities and differences. Because the state of Nuevo León is one of México's most industrialized, other states can learn from its business sector. If this study were replicated in Nuevo Leon's manufacturing

sector, San Luis Potosí's business professionals could learn what strategies the top managers there are implementing.

3. This study can include additional variables related to the categories of strategy. For example, a researcher could investigate whether the existence of an entrepreneurial background of the top decision maker is associated with strategy.
4. The research reported here has related the strategy of the firm to its financial performance. However, a number of other variables can contribute to explaining the variance in firm's financial performance and the strategy implemented. Future studies can include additional variables, such as those related to managerial characteristics (i.e., locus of control or need for achievement) and business-specific factors, such as technology employed and business size.
5. Since correlation analysis was used to measure the degree association between variables, nothing can be concluded about causality. However, regression analysis can be used to identify which variables contribute to explaining the variance in the firm's financial performance, one of these variables can be the category of business strategy implemented. By doing this, the researcher would be in a stronger position to suggest which variables contribute to better explaining the firm's financial performance.

As the reader can observe, the areas of study that this research opens is wide-ranging and can assist practitioners in improving their firms' performance.

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APPENDICES

APPENDIX A.- SURVEY QUESTIONNAIRE**MONTERREY TECH
SAN LUIS POTOSI CAMPUS**

The purpose of this questionnaire is to collect information related to the strategic orientation of your firm. There are no correct or incorrect answers, and the confidentiality of your responses is assured.

I very much appreciate the time you take to complete this instrument. The results of this field study will be reported in the researcher's doctoral dissertation. The name of the respondent, and the name and telephone number of the firm are requested solely for control purposes of control.

Name of the respondent: _____

Position: _____

Name of the firm: _____

Telephone number: _____

Name of the interviewer: _____

**I. INFORMATION RELATED TO THE INDUSTRY YOUR FIRM
COMPETES IN (SELECT ONLY THE OPTION THAT CORRESPONDS
TO THE ACTIVITY REPORTED TO CANACINTRA):**

- 1) Capital goods _____
- 2) Metal mechanic _____
- 3) Foundries _____
- 4) Construction supply _____
- 5) Chemical _____

II. STRATEGIC ORGANIZATION:

Which one of the following descriptions most closely fits your organization compared to other firms in the industry? Please read all the descriptions and the examples provided before selecting the corresponding alternative. None of the descriptions provided may be exactly like your business, but please look for similarities. Also, consider your business as a whole and note that none of the types listed is inherently "good" or "bad.")

____Type A. This type of organization attempts to locate and maintain a secure niche in a relatively stable product or service area. The organization tends to offer a more limited range of products or services than its competitors. Often this type of organization is not at the forefront of developments within 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.

Following are examples of this type of strategic orientation for each kind of industry. The examples provided are intended to serve as illustrations for this kind of strategic orientation and may not exactly be representative of your firm's specific activity within its industry. It is recommended that you read only the example related to the industry your firm competes in.

Capital goods industry: We only have three lines of forklifts to serve a very specialized niche. Our priority is to keep on serving our current market base instead of trying to widen our product lines.

Metal mechanic industry: In this business we try to maintain our customer base. We do not make continuous improvements in our product lines nor try to be the first to introduce innovations. Efficiency in operations and administrative processes are critical activities in this organization.

Steel foundry industry: Our core strategy dictates that we keep serving our current customers on an on-time delivery and quality basis. We do not make much improvement in production processes except for substantially reducing manufacturing costs. Our product line is fairly stable, but not as wide as our competitors'. We offer rods in three calibers only to medium-sized construction companies, while our competitors offer a much broader range of calibers to a wider customer base. We want to keep on serving our existing customers, and we are not interested in new ones if that implies widening our existing product line.

Construction supply industry: In this business we try to maintain a stable product line and offer a more limited one as compared to our competitors. In general, we are not "first-in" in technological developments unless they are related to improving efficiency of operations.

Chemical industry: The strategy of this business centers on maintaining the business' customer base. Our product lines are relatively stable, and offer a narrower product line compared to our competitors. We do our job as well as possible within a limited business base.

____Type B. This type of organization typically operates within a broad product-market domain that undergoes periodic redefinition. The organization values are "first in" in new product and market areas even if not all of these efforts prove to be highly profitable. The organization 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 organization may not maintain market strength in all of the areas it enters.

Following are examples of this type of strategic orientation for each kind of industry. The examples provided are intended to serve as illustrations for this kind of strategic orientation and may not be exactly representative of your firm's specific activity within its industry. It is recommended that you read only the example related to the industry your firm competes in.

Capital goods industry: We continually display our equipment in expositions and change models as soon as innovations can be incorporated.

Metal mechanic industry: Last year we launched five new products into the market, more than any of our competitors. Not all of them were successful, but we gained considerable market share and recognition among our customers.

Steel foundry industry: We constantly seek to develop new technologies in our manufacturing process. Development engineering is always trying to come up with new manufacturing processes to better serve our customer base. Last year we improved our heating process and reduced production time by 10%. This gave us an additional advantage over our competitors.

Construction supply industry: In this business we try to be "first in" in new product design. We have a wide customer base. We constantly seek for business opportunities and quickly respond to business opportunities.

Chemical industry: We try to be the first among our competitors in launching new products into the market. It is very important to the firm to be the first in the market, even though we are not always successful, it usually proves advantageous to be the first in the market.

____Type C. This type of organization attempts to maintain a stable, limited line of products or services, while at the same time moving out quickly to follow a carefully selected set of more promising new developments in the industry. The organization is seldom "first in" with new products or services. However, by carefully monitoring the actions of major competitors in areas compatible with its stable product-market base, the organization can frequently be "second in" with a more cost-efficient product or service.

Following are examples of this type of strategic orientation for each kind of industry. The examples provided are intended to serve as illustrations for this kind

of strategic orientation and may not be exactly representative of your firm's specific activity within its industry. It is recommended that you read only the example related to the industry your firm competes in.

Capital goods industry: In this business, both marketing and production are equally important. We are not at the forefront of product development, but we are ready to manufacture new products coming to the market from our competitors. We are ready to follow the introduction of a new product into the market with our own version of that product. In internal combustion motors, we see what our competitors do and then we quickly improve the products and put them into the market.

Metal mechanic industry: We constantly monitor what our competitors do and then we try to improve it and put it into the market. We do not do much R&D here. Instead, we try to launch into the market our own version of an existing product. Last year we put into the market our own version of a product that one of our major competitors had developed.

Steel foundry industry: Our core strategy can best be described as "see what others do and then improve it." We maintain a balance between sales and production people so that we can be ready to improve an existing process and put it into the market. Sales and production are considered equally important. Last year one of our competitors developed a new rolling process. By mid-year we had improved that process allowing us to reduce production process costs by 5%.

Construction industry supply : The strategy of this business focuses on monitoring what our competitors do and then trying to improve it. We are "second" in launching new products into the market, but our product is less expensive and has better specifications.

Chemical industry: In this business we prefer to study our competitors' products and actions and then try to outperform them. We are not interested in

being first in the market. Instead, we try to improve our competitors' products.

____Type D. This type of organization does not appear to have a consistent product-market orientation. The organization is usually not as aggressive in maintaining established products and markets as some of its competitors, nor is it willing to take as many risks as other competitors. Rather, the organization responds to those areas where it is forced to by environmental pressures.

Following are examples of this type of strategic orientation for each kind of industry. The examples provided are intended to serve as illustrations for this kind of strategic orientation and may not be exactly representative of your firm's specific activity within its industry. It is recommended that you read only the example related to the industry your firm competes in.

Capital goods industry: In this business we do not have a clearly articulated organizational strategy. Current organizational structure does not seem to encompass the firm's strategy. We have opened three new business lines--forklifts, heavy machine equipment and machine tools--without really mastering any of them.

Metal mechanic industry: There does not seem to be a clearly defined strategy in this business. We are more oriented towards a "see what comes out" focus. Sometimes we design our products, and sometimes we put into the market our own version of an existing one.

Steel foundry industry: In this company we try to respond to changes in our external environment rather than control them. Sometimes we act in advance of our competitors without really knowing how. Last year our major competitor reduced the price of a type of wrought iron we also produced so we had to cut our selling price at the expense of margin in order to avoid being driven out of the market for that product.

Construction supply industry: We do not have a clearly articulated strategy in

this business. Sometimes we try to be first in the market. At other times, we focus on maintaining our product line and customer base.

Chemical industry: In this business we do not have a clear strategy. However, it seems that we respond to events that occur in the marketplace.

____ My firm does not seem to fit any of the above-mentioned characteristics.

III. STRATEGIC FOCUS:

Choose the generic strategy that best identifies the strategic orientation of your firm. Remember to read each alternative and its corresponding example before answering it, and do not forget that there are no "good" or "bad" answers.

____ Type A. In this business we pay great attention to asset use, employee productivity, and discretionary expenses. Our customers buy our products primarily because they cost less than our competitors' equivalent products.

Following are examples of this type of strategic orientation for each kind of industry. The examples provided are intended to serve as illustrations for this kind of strategic orientation and may not be exactly representative of your firm's specific activity within its industry. It is recommended that you read only the example related to the industry your firm competes in.

Capital goods industry: In this business we have tight cost controls, allowing us to sell at the lowest cost available in the market.

Metal mechanic industry: This business places strong emphasis on cost reduction. Our design engineers are always trying to come up with a more efficient process or product that allows to us reduce production costs so that we can sell at the lowest price.

Steel foundry industry. We are always trying to offer the lowest price in comparison to our competitors'. Overhead and production costs are closely

monitored so that deviations from the budget are promptly identified. In addition, production process engineers are always trying to attain more efficiency so that unnecessary costs are eliminated.

Construction industry: Our core strategy clearly dictates offering the lowest cost available in the market compared to similar products offered by our competitors. We achieve this strategy through efficiency in operations and tight cost control.

Chemical industry: Our business strategy focuses on offering the lowest cost compared to similar products offered by our competitors.

____ Type B. In this business we are always trying to create value perceived as unique by our customers. This takes many forms, including image, service, distribution, quality, and product attributes. Costs are important to us, but they are not our major concern.

Following are examples of this type of strategic orientation for each kind of industry. The examples provided are intended to serve as illustrations for this kind of strategic orientation and may not be exactly representative of your firm's specific activity within its industry. It is recommended that you read only the example related to the industry the your firm competes in.

Capital goods industry: In this business, we continually try to come up with a product that is clearly distinguishable us from our competitors' products.

Metal mechanic industry: Competition in this industry is intense. We have decided that our products and the services we provide must be perceived as unique by our customers. Customers must find something that clearly distinguishes our products and that provides additional value for them.

Steel foundry industry: Quality and variety of specifications are perceived as unique by our customers. This added value increases our costs somewhat, but our

customers are willing to pay for that.

Construction supply industry: We try to offer additional value to our customers. As a matter of fact, our customers are willing to pay premium prices for our products because the service we offer is valuable to them.

Chemical industry: Our business strategy dictates offering an additional service to our customers. They are willing to pay more for this service.

____ Type C. We compete in a narrow segment and we have chosen to target a very specific market niche based on low sale prices. We are not interested in serving a broad base of customers. Instead, we want to be the least costly providers to a very narrow customer base.

Following are examples of this type of strategic orientation for each kind of industry. The examples provided are intended to serve as illustrations for this kind of strategic orientation and may not be exactly representative of your firm's specific activity within its industry. It is recommended that you read only the example related to the industry your firm competes in.

Capital goods industry: We have decided to serve a very narrow customer base. We manufacture forklifts for heavy use only whose sale price is the lowest on the market.

Metal mechanic industry: We have a very specific target market: construction companies specializing in building apartments for medium-income families. We sell iron structures which are affordable to these construction companies.

Steel foundry industry: We have identified a specific market niche: we produce iron rods for small construction companies that cannot afford to buy large volume. They buy our products because they get the lowest price available.

Construction supply industry: Our business strategy clearly dictates that we

select a market niche--we are not interested in a wide customer base. Instead, we focus on a market niche in which offer the lowest cost available compared to similar products offered by our competitors.

Chemical industry: The strategy followed in this business dictates that we select a market niche--we are not interested in a wide market base. The selected market niche is offered the lowest cost possible for similar products.

____ Type D. We compete in a narrow market niche. We have chosen to target this very specific market area based on products that are perceived as especially unique to our customers. We are not interested in serving a broad base of customers. Instead, we want to provide a very specific product to a very specific.

Following are examples of this type of strategic orientation for each kind of industry. The examples provided are intended to serve as illustrations for this kind of strategic orientation and may not be exactly representative of your firm's specific activity within its industry. It is recommended that you read only the example related to the industry your firm competes in.

Capital goods industry: We have decided to serve a very narrow customer base. We manufacture forklifts for heavy use only whose performance characteristics are perceived as unique to our target market segment.

Metal mechanic industry: We have a very specific target market: construction companies specializing in building highly engineered constructions. We sell them iron structures according to their requirements, and they value our service highly.

Steel foundry industry: We have identified a specific market niche: we produce iron rods for specialized construction companies which require iron rod calibers that are uncommon in the market.

Construction supply industry: The strategy followed in this firm dictates offering an exclusive product line in terms of service and quality to a very specific

customer base. We do not offer our products to a wide market segment; instead, we focus on a small, clearly identified market niche.

Chemical industry: Our strategy requires selecting a market niche--a small part of the market--and offering it a product with an added value compared to our competitors' product. Our market niche pays for that value in the product we sell.

____ Type E. This business seems to follow all of the above strategies at the same time, none in particular. Sometimes we try to keep cost to a minimum, sometimes we try to have a clearly unique product, and sometimes we try to focus on a specific kind of customer.

____ Type F. This business does not follow any of the above strategies. We clearly follow other strategies in order to compete.

IV. INFORMATION RELATED TO THE FIRM'S CHARACTERISTICS:

1) Indicate the range of blue-collar and white-collar employees that work in the firm (include all employees on the payroll):

- 1) Fewer than 15 _____
- 2) Between 16 and 100 _____
- 3) Between 101 and 250 _____
- 4) More than 250 _____

2) Indicate the range of your firm's annual sales:

- 1) Up to 572,940.50 nuevos pesos _____
- 2) Between 572,940.50 and 5,807,533.25 nuevos pesos _____
- 3) Between 5,807,533.25 and 10,469,185.50 nuevos pesos _____
- 4) Above 10,469,185.50 nuevos pesos _____

3) As compared to the average performance of the industry your business competes in, the financial performance of the your firm (as measured by net profit margin--net profit/annual sales) is:

- 1) Below average _____
- 2) On average _____
- 3) Above average _____

4) In general, since the current strategy of the firm was implemented, how has the firm's net profit margin (profit margin/sales) been compared to the results from the previous strategy?

- 1) It has increased considerably. _____
- 2) It has increased. _____
- 3) It has remained constant. _____
- 4) It has decreased. _____
- 5) It has decreased considerably. _____

5) In general, since the firm's current strategy was implemented, how has market share changed as compared to the results from the firm's previous strategy?

- 1) It has increased considerably. _____
- 2) It has increased. _____
- 3) It has remained constant. _____
- 4) It has decreased. _____
- 5) It has considerably decreased. _____

6) How many years ago was the firm's current strategy implemented?

- 1) One year ago or less _____
- 2) Between 1 and 3 years ago _____
- 3) Between 4 and 6 years ago _____

- 4) More than 6 years ago _____
- 7) In general, business net profit margin for the last three years has:
- 1) Decreased _____
 - 2) Remained constant _____
 - 3) Increased _____
- 8) In general, the firm's market share for the last three years has:
- 1) Decreased _____
 - 2) Remained constant _____
 - 3) Increased _____
- 9) The final responsibility for implementing the firm's current strategy belonged to:
- 1) The owner of the business _____
 - 2) A professional manager (who is not the owner of the business) _____
- 10) For each of the following organizational functions, assign a score of 1 if much emphasis is placed on that function, a score of 2 if average emphasis is placed on it, and a score of 3 if not much emphasis is placed on that organizational function.
- a) General management _____
 - b) Financial management _____
 - c) Marketing/selling _____

- d) Market research _____
- e) Product research and development _____
- f) Engineering, basic and applied _____
- g) Production _____
- h) Distribution _____
- i) Legal Affairs _____
- j) Personnel _____

V. INFORMATION RELATED TO THE PERSON HAVING THE FINAL RESPONSIBILITY FOR IMPLEMENTING THE FIRM'S CURRENT COMPETITIVE STRATEGY:

Check the appropriate space for your maximum level of formal education:

- 1) Doctoral degree _____
- 2) Unfinished doctoral studies _____
- 3) Master's degree _____
- 4) Unfinished master's studies _____
- 5) Bachelor's degree _____
- 6) Unfinished bachelor studies _____
- 7) High school _____
- 8) Unfinished high school _____
- 9) Junior high school or elementary school _____
- 10) No formal level of education _____

APPENDIX B: PRESENTATION LETTER

San Luis Potosí, S.L.P., June of 1993.

Dear Mr. _____:

This letter is to formally introduce Mr./Ms. _____, a student of the business management undergraduate program at ITESM-SLP, who is collaborating in a research project aimed at relating two typologies of business-level strategies with certain characteristics of the organization and top decision-maker.

The information that you so kindly provide is necessary to achieve the purpose of this research, and its treatment is completely confidential.

I sincerely appreciate the time that you devote in answering the attached questionnaire.

Yours truly,

Daniel Maranto Vargas
Researcher