Relationship between competitive strategies and innovation types.

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Abstract:

By adopting innovation firms intend to respond to environmental changes either by introducing new products (differentiation strategy) or by increasing operational efficiency (cost leadership strategy), in both cases companies attempt to improve their performance. The purpose of this paper is to further our understanding of the relationships among competitive strategies, innovation types, and firm performance in a sample of Mexican companies. Results indicate that companies that scan the environment to determine if technological changes affect their products (services) prefer a differentiation strategy. Also, companies with differentiation strategy thrive to develop new products for their market. Implications for managers are included.

Key words: Competitive strategy, innovation, performance
Introduction:

Technological change and powerful competitors have made the quest for competitive advantage more difficult and its accomplishments less sustainable (D'Aveni, 1994). Changes in the environment motivate organizations to seek change. By adopting innovation, firms intend to respond to these changes either by introducing new products (differentiation strategy) or by increasing operational efficiency (cost leadership strategy), in both cases companies attempt to improve their performance. However, this is not an easy task. For example, Yoon and Lilien (1985) have argued that intensity of competition is negatively related to success rates of innovation.

Innovation plays a key role in business performance (Brown & Eisenhardt, 1995; D'Aveni, 1994; Hamel and Prahalad, 1991). Hamel and Prahalad (1991) and D'Aveni (1994) argue that being first to a market combined with continuous innovation is the key to survival in a turbulent business environment. This is probably why, nowadays, the competitive environment is characterized by a very rapid pace of change.

Innovation is defined as the development and/or use of new ideas or behaviors (Daft 1978). A new idea can pertain to a new product, service, market, operational and administrative structures, processes and systems. In this same line, Paladino (2007) defines innovation as the firm’s ability to adopt new ideas, products, and processes successfully.

The management of innovation has become a subject of significant research interest (Hitt, Nixon, Hoskisson and Kochhard, 1999). Due to the fact that innovation appears to be a way to create value for companies and considering the fast pace of changing conditions in the environment, the purpose of the study is to further explore, in a sample of Mexican companies, the relationships between competitive strategies, innovation types and firm performance.

The structure of the paper is as follows. First, a literature review of competitive strategies (differentiation and cost leadership), innovation types (product and process) considering the environment as well as their relation to performance is included. Second, a proposed model of the relationships among the variables included in the review is presented. Third, the method used is described. Fourth, the results as their discussion as well as some limitations of the study are presented. Finally, the conclusions are included.

Competitive Strategies and Environmental Scanning

Porter (1980) classified the competitive advantage sources into two principal categories: differentiation and cost leadership strategy. Differentiation strategy means product development with added advantages or those which are perceived to be unique or different in the industry and offer a greater benefit to consumers. This can be accomplished though various means, such as brand name image, technology, service or
product properties. Cost leadership strategy, without compromising quality, service or other product aspects, attempts to achieve lower costs than the competition. In other words, this strategy intends to render internal efficiency into lower costs or more reduced prices for the purchasers. It is based on economies of scale and scope.

Vazquez, Santos, and Alvarez (2001) suggested that certain competitive strategies are related to innovation behavior, in particular to differentiation strategy as defined by Porter (1980). Stable markets with known demand and limited possibility for technology improvement are becoming scarce (Vazquez et al., 2001), but even in this type of market, process innovation might be needed in order to keep a low cost structure.

Some authors (Damanpour, Walker and Avellaneda, 2009) suggest that organizations adopt innovation in response to changes in technological and managerial knowledge, industry competition, constituents' expectation, or top executives' aspiration to gain distinctive competencies and improve the level of performance. They argue that innovation is adopted as a means for organizational adaptation and change to facilitate achieving the firm’s performance goals, especially under intense competition, rapidly changing markets, scarce resources and public demand for higher quality and better products and services. For example, Jansen, Van den Bosch and Volberda (2006) proposed that environmental dynamism and environmental competitiveness might moderate the relationship between innovation (exploratory and exploitative) and financial performance of a large European financial services firm.

Papadakis Lioukas, and Chambers (1998) define environmental heterogeneity as the rate a company is forced to continuously offer new products to their market considering changing environmental conditions such as customer buying habits, the nature of competition, market dynamism, and the uncertainty of the market. Vazquez et al., 2001 results' showed that market orientation significantly favors firms' innovativeness which in turn, affects the companies' innovation rates and new product innovativeness, whereas both variables exert a direct, positive influence on companies' performance. They also found that the companies' degree of market orientation was significantly related to the application of both: differentiation and cost leadership strategies, the association was much stronger in the former. Consequently, the strategic choices of the most market-oriented firms imply the intention to not only enact a proactive role in innovation development, but also to innovate regularly.

We propose that firms that scan the environment to determine if new technology will affect the products and services offered will probably be better off pursuing a differentiation strategy rather than a cost leadership strategy. Considering the previous information we propose the following hypothesis.

**H1. Firms that scan the environment for technological change will pursue a differentiation strategy more than a cost leadership strategy.**
Competitive Strategies and the adoption of Innovation

Innovation is defined as the development and/or use of new ideas or behaviors (Daft 1978). A new idea can pertain to a new product, service, market, operational and administrative structures, processes and systems. In this same line, Paladino (2007) defines innovation as the firm’s ability to adopt new ideas, products, and processes successfully. The most widely studied typology of innovation is the distinction between product and process innovation (Damanpour et al., 2009; Kotabe and Murray, 1990).

With product innovation, the firm offers new products and services to existing or new clients. Product innovation have external focus, are primarily market driven, and their introduction results in differentiation of the organization’s output for its customers or clients (Damanpour and Gopalakrishnan, 2001). Brown and Eisenhardt (1995) in their review of the past and present findings of product development, suggest that product development is the nexus of competition for many firms as well as the central organizational process for adaptation and renewal. They identify product development as an important core competence for organizations. Product innovation requires that firms assimilate customer need patterns, design, and manufacture the product.

With process innovation, firms introduce innovations in the organization’s production or operating systems. Process innovation has internal focus and aim to increase efficiency and effectiveness of the internal organizational processes to facilitate the production and delivery of goods or services to the customer (Boer and During, 2001). Process innovations require firms to apply technology to improve the efficiency of the firm’s operations.

As mentioned earlier, Porter (1980) identified two sources of competitive advantage: differentiation and cost. A company can outperform rivals only if it can establish a difference that it can preserve, choosing to perform activities differently than rivals do. According to Porter (1996) it must deliver greater value to customers or create comparable value at a lower cost, or do both. Specifically, the superior profitability then follows: with a differentiation strategy the firm can deliver greater value which allows a company to charge higher average unit price, or with a cost leadership strategy the firm can gain greater efficiency which results in lower average unit costs.

It seems reasonable to suggest that a firm with a differentiation strategy will adopt product innovation, trying to deliver new products or services that might satisfy the special needs of their clients in well defined, specialized markets while a firm with a cost leadership strategy will adopt process innovation, trying to develop economies of scale to be able to compete with low prices in broadly, unspecialized markets. Considering the previous information we propose the following hypotheses.

**H2:** Firms with a differentiation strategy will focus on the development of new products (product innovation).
Innovation and Firm Performance

Innovation plays a key role in business performance (Brown & Eisenhardt, 1995; D'Aveni, 1994; Hamel and Prahalad, 1991). Hamel and Prahalad (1991) and D'Aveni (1994) argue that being first to a market combined with continuous innovation is the key to survival in a turbulent business environment. This is probably why, nowadays, the competitive environment is characterized by a very rapid pace of change.

Changes in the environment motivate organizations to seek change. By adopting innovation, firms intend to respond to these changes either by introducing new products (differentiation strategy) or by increasing operational efficiency (cost leadership strategy), in both cases companies are attempting to improve their performance. For example, Vazaquez et al. (1995) found support for the relationship between a firm's innovation rate and new product innovativeness and superior firm performance. In another example, Lyon and Ferrier (2002) proposed a positive relation between product-market innovation and firm performance. They found a positive, significant relation between product-market innovation and market share gain.

The rationale behind the link between process performance (speed and productivity) and financial success of the product is twofold (Brown & Eisenhardt, 1995). A productive process means lower costs and thus, lower prices, which, in turn, should lead to greater product success. Second, a faster process creates strategic flexibility and less time to product launch, both of which may lead to financially successful products. Considering the previous information we propose the following hypothesis.

\[ H4: \text{Firms that pursue either product or process innovation have a positive impact on performance.} \]

Proposed Model

The proposed model of the study is presented in figure 1.

\[ \text{Figure 1. Proposed Model: Competitive strategy, innovation type and firm performance.} \]
Method

Sample
The study was performed at the team level. Hambrick (2007) argues that attention to executive groups, rather than individuals (e.g. CEO), often yields better explanations of organizational outcomes. Furthermore, some evidence suggests that certain characteristics, factors, and values shared among the TMT members of an organization are better predictors of organizational outcomes than the individual characteristics of the members in the team (Bantel and Jackson, 1989; Wiersema and Bantel, 1992). TMTs of 29 medium and large manufacturing companies located in Mexico were included in the sample. The companies’ CEOs were asked to select as participants in the study, the members of his/her TMT; considering those who actively participate in the strategic decision making process of the firm.

Data Collection
Data was collected by using questionnaires. Following a similar procedure used by Hiller (1994), originally suggested by Brislin (1980) the questionnaires were translated from English to Spanish and back to English. The questionnaire was sent to a total of 443 companies located in Monterrey and the nearby areas, which are included in the CAINTRA’s directory. Of the total, thirty-three were returned due to several reasons (e.g. wrong address, the company didn’t exist anymore). The companies’ CEOs were asked to select as participants in the study, the members of his/her TMT; considering those who actively participate in the strategic decision making process of the firm. Members of the TMT (including the CEO) completed the questionnaires about their strategic consensus regarding their competitive strategies (differentiation and cost leadership), innovation types (product and process) and environmental scanning for technological changes. Firm performance was obtained only from the highest executive of the firm (CEO). One hundred and eighteen usable questionnaires were collected. This represents a response rate of 7.07%.

Measures
Knight, Pearce, Smith, Olian, Sims, Smith and Flood (1999) captured strategic consensus using a broad and informed strategic management literature. TMT Strategic consensus is defined as the degree to which individual mental models of strategy overlap. It is a measure of the similarity among TMT members’ interpretations about firm’s strategic orientation. It consists of as a forty eight-5-point-Likert scale (1=strongly disagree to 5=strongly agree). It includes the firm’s emphasis on costs, differentiation, innovation, new product development, environmental scanning, among others. The corresponding items were used for some of the variables included in this study. The
questionnaire that was used to measure all the variables in the study is included in Appendix 1.

*Environmental scanning* is defined as frequently assessing the long-term implications of change in technology relevant to the products and services offered by the company. Environmental scanning was measured using an item considered in Knight’s scale in regard to this topic, one-5point-Likert type scale (1=strongly disagree to 5=strongly agree). The measure captures the importance the members of the TMT give to the process of scanning the environment to determine how technological change will have an impact on their product and services offered. In total we had 1 response for each team members. To calculate the final team orientation measure, for each team, the responses of the team were averaged.

*Differentiation strategy* is defined by Porter (1980) as a strategy that offers new products with added advantages or those which are perceived to be unique or different in the industry and offer a greater benefit to consumers. Differentiation strategy was measured using the items considered in Knight’s scale in regard to this topic, eight-5point-Likert-type scale were (1=strongly disagree to 5=strongly agree). The measure captures if the firm is pursuing a differentiation strategy. In total we had 8 responses for each team members. For each team, we calculated the average of each item. To calculate the final team orientation measure, for each team, the responses of the 8 items were averaged.

*Cost leadership strategy* is defined by Porter (1980) as a strategy that without compromising quality, service or other product aspects, attempts to achieve lower costs than the competition. Cost leadership strategy was measured using the items considered in Knight’s scale in regard to this topic, four-5point-Likert-type scale were (1=strongly disagree to 5=strongly agree). The measure captures if the firm is pursuing a cost leadership strategy. In total we had 4 responses for each team members. For each team, we calculated the average of each item. To calculate the final team orientation measure, for each team, the responses of the 4 items were averaged.

*Product innovation (new product development)* is defined by Damanpour and Gopalakrishnan (2001) as new products or services introduced to meet an external user or market need. Product innovation was measured using the items considered in Knight’s scale in regard to this topic, five-5point-Likert-type scale were (1=strongly disagree to 5=strongly agree). In total we had 5 responses for each team members. For each team, we calculated the average of each item. To calculate the final team orientation measure, for each team, the responses of the 5 items were averaged. The measure captures the importance of new product development, including the number and speed of the development of new products.

*Process innovation (economies of scale)* is defined by Damanpour and Gopalakrishnan (2001) as new elements introduced into an organization’s production or service operations to produce a product or render a service. Process innovation was
measured using an item considered in Knight’s scale in regard to this topic, one 5-point-Likert type scale (1=strongly disagree to 5=strongly agree). The measure captures the level of priority members of the TMT give to having economies of scale. In total we had 1 response for each team members. To calculate the final team orientation measure, for each team, the responses of the team were averaged.

Firm performance refers to how well the organization is doing with regard to efficiency and growth indicators. It was assessed using RO and sales growth. Following Bowman and Ambrosini (1997), it was measured using one 5-point-Likert-type scale measuring for ROI and one for sales growth (1=strongly disagree to 5=strongly agree). The CEO was asked if its firm performance was superior relative to other firms in their industry.

Analytic Approach
Pearson correlations among the variables were performed to test the hypotheses.

Results and Discussion
The means, standard deviations, correlations, and reliabilities are presented in Table 1.

Table 1. Means, Standard Deviations and Correlations (N=29)

<table>
<thead>
<tr>
<th>Scales</th>
<th>Mean</th>
<th>s.d.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Environmental scanning</td>
<td>3.72</td>
<td>0.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Differentiation strategy</td>
<td>3.82</td>
<td>0.50</td>
<td>.402*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Cost strategy</td>
<td>3.41</td>
<td>0.63</td>
<td>-.175</td>
<td>.571*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. New Product Development</td>
<td>3.12</td>
<td>0.49</td>
<td></td>
<td></td>
<td>.522*</td>
<td>.708*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Economies of scale</td>
<td>3.87</td>
<td>0.69</td>
<td>.384*</td>
<td>.255</td>
<td>-.027</td>
<td>.354</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Performance (ROI)</td>
<td>4.00</td>
<td>1.00</td>
<td>.220</td>
<td>.189</td>
<td>-.109</td>
<td>.284</td>
<td></td>
<td>.068</td>
<td></td>
</tr>
<tr>
<td>7. Perf. (sales growth)</td>
<td>3.69</td>
<td>1.00</td>
<td>.101</td>
<td>.249</td>
<td>-.040</td>
<td>.283</td>
<td>.093</td>
<td></td>
<td>.534*</td>
</tr>
</tbody>
</table>

* p < .05, **p < .01
Reliabilities are included in the diagonal.

First, for H1, we proposed that firms that scan the environment for technological change will pursue a differentiation strategy more than a cost leadership strategy. As it
can be seen on the table, the mean for differentiation strategy (3.82) is higher than for cost leadership strategy. Analyzing the data for each of the 29 companies included in the sample, 18 prefer differentiation strategy while only 11 prefer a cost leadership strategy. Furthermore, we found a positive significant relation \( r = .402, p = .03 \) between environmental scanning and companies having a differentiation strategy. Thus, H1 was supported.

It was important for strategies pursuing a differentiation strategy to assess the environment to identify how technological changes will affect the products and services offered. A differentiation strategy has an external focus and needs to be aware of environmental changes more than firms pursuing a cost leadership strategy, which has more of an internal focus.

Second, for H2, we proposed that firms with a differentiation strategy will focus on the development of new products (product innovation). We found a positive significant relation \( r = .708, p = .00 \) between companies having a differentiation strategy and developing new products (product innovation). Thus, there was support for H2. The reliabilities for differentiation strategy measure and the new product development measure were alpha = .830 and .779, respectively.

Results showed a positive, significant relation between differentiation strategy and new product development (product innovation). The essence of a differentiation strategy is being able to create value to clients by offering products and services that can satisfy its specialized needs of customers.

Third, for H3, we proposed that firms with a cost leadership strategy will focus on having economies of scales (process innovation). We found no significant relation among the variables. Thus, there was no support for H3. The reliability of the cost leadership strategy measure was alpha = .727.

Results did not found a relationship between a cost leadership strategy and economies of scales. This comes as a surprise because the essence of this strategy is being able to maintain efficient operations. A possible explanation is the limitation that comes when measuring economies of scales using only one item.

Finally, for H4, we proposed that firms that pursue either product innovation or process innovation have a positive impact on performance. We found no significant relation, neither for product innovation nor for process innovation, for either of the two measures used to measure firm performance (ROI, sales growth). Thus, there was no support for H4.

Results show no relation between innovation and firm performance. This is probably due to the nature of the study, being cross sectional it does not capture the effects of performance because there is a time lag between the decisions and their results.

Limitations
Notwithstanding the limitations later outlined, the present study contributes to the overall understanding of the relations among competitive strategy (cost leadership versus differentiation), innovation types (product and process) and firm performance.

Some limitations can be pointed out. First, the study is cross-sectional and multi-industry in nature so time lags that may occur between the formulation/implementation of a strategy and the achievement of firm performance are not considered. Second, the association among variables that indicate correlation coefficients does not imply the existence of causal effects. Third, to measure economies of scales a single item was used. However, several team members answered the question and the final measure was obtained considering the average of the responses. Finally, another possible limitation is that for the measurement of firm performance the study relied on a single respondent from each firm, the CEO of the company. However, the CEO, being the ultimate responsible for the company, he/she is the most appropriate person to answer these questions. Furthermore, performance was self-reported. However, it has been found that self-reported performance and actual performance are highly correlated (Bowman & Ambrosini, 1997). Future research should try to avoid these shortcomings.

Conclusions: Implications for Managers
Technological change and powerful competitors have made the quest for competitive advantage more difficult and its accomplishments less sustainable (D'Aveni, 1994). By adopting innovation, firms intend to respond to these changes either by introducing new products (differentiation strategy) or by increasing operational efficiency (cost leadership strategy), in both cases companies attempt to improve their performance. In sum, innovation plays a key role in business performance (Brown & Eisenhardt, 1995; D'Aveni, 1994; Hamel and Prahalad, 1991).

The qualitative review of the success and failure of innovation done by Panne, Beers and Kleinknecht (2003) found that there is agreement that, a clearly articulated innovation strategy and a management style suited to that, is one factor that will enhance innovative success. For example, Ramos-Garza (2003) found that firms facing complex environments need strategic consensus among their top management team members in order to perform well. In the present study, the measures used included the responses of the members of the top management team of each company included in the sample. So there appears to be strategic consensus among team members with regard to two important issues. First, the importance to assess how technological changes will affect the company. Second, the importance of product innovation translates in new product offering to their clients. They are all in the same frequency, their strategic maps overlap and try to gain competitive advantage and have superior performance pursuing a differentiation strategy.

In sum, Hamel and Prahalad (1991) and D'Aveni (1994) argue that being first to a market combined with continuous innovation is the key to survival in a turbulent business environment. In order for firms to gain a competitive advantage and have
superior performance, managers need to clearly articulate an innovation strategy. Results in the present study indicate the importance for top managers that pursue a differentiation strategy, to adopt product innovation because this will allow them to develop new products that can better satisfy the specialized needs of actual and potential clients. Results also showed the importance to scan the environment in order to identify how technological changes will impact company operations in order for them to be well prepared to face the present and future challenges.

References


Capítulo 3. Administración Estratégica


Retos de las ciencias administrativas desde las economías emergentes: Evolución de sociedades.


Appendix 1. Questionnaires

*Environmental Scanning (1 item)*

Our company frequently assesses the long-term implications of change in technology relevant to the products and services we offer.

*Differentiation Strategy (8 items, alpha = .830)*

Our company makes its profits delivering above-average quality goods and services and then charging more for them.

The quality of our products and services far exceeds that of our competitors.

Our company focuses its products and services to meet the specialized needs of select clients; we don’t try to be all things to all people.

Our brand name is an extremely valuable marketing asset.
Most of our products and services compete in higher-priced markets. Overall, our customers rate the quality of our products and services as excellent. Our company emphasizes after-sales support, such as telephone hot lines, field technicians and strong warranties. Our company works hard at building a strong product or brand image. 

**Costs Leadership Strategy (4 items, alpha = .727)**

Our number one priority is lowest cost relative to our competition. Most of our product and services compete in lower-priced markets. Using our experience to cut costs is an important goal of this company. Our company makes its profit by selling large quantities of goods and services at the lowest possible prices.

**Product Innovation (5 items, alpha = .779)**

The speed with which we develop products relative to our competition is an important priority for this company. Our company more often introduces completely new products and services rather than simply modifying existing lines. From start to finish we develop products faster than our competitors. Our company introduces more new products and services each year than our closest competitors. Our company makes dramatic rather than minor changes in our product lines.

**Process Innovation (1 item)**

Taking advantage of economies of scales is an important goal of this company.

**Firm Performance (1 item for each measure)**

Relative to other businesses in our industry, we perform well in terms of ROI. Relative to other businesses in our industry, we perform well in terms of sales.