Analogical foundation of the scope of organizational change

Fernando Fuentes-Henríquez
Universidad de Concepción, Concepción, Chile, and
Patricio Del Sol
Pontificia Universidad Católica de Chile, Santiago, Chile

Abstract

Purpose – The purpose of this study is to attempt to analyze how the distance of analogies used during the strategy formulation process is a critical driver used to explain the different scopes of implemented changes.

Design/methodology/approach – This study was based on field research using primary data gathered from 70 firms by means of an 83-item survey. The questions were carefully constructed and answered by top managers according to a four-point scale. The three hypotheses were analyzed using multiple linear and quadratic regression analysis.

Findings – The study defines a new concept of analogy's distance. Firms implement incremental changes when top managers use either short- or long-distance analogies within the strategic formulation process, whereas radical changes are implemented when top managers apply medium-distance analogies.

Research limitations/implications – Even though the response rate was higher than recommended by specialists (21.5 percent), the sample was small, and also, more valid and reliable measures of different analogical distances and scopes of change are needed. The findings of this study allow us to make theoretical extensions to the cognitive theory of the strategy formulation process, strategic renewal theory, knowledge-based view of the firm, storytelling theory of organizations, and the upper echelon theory.

Practical implications – Scholars from various disciplines and practitioners agree that analogies are a useful tool for many organizational matters (i.e. design strategy, renewal strategy, conflict management, understanding complex environments, facilitating communications, creating the need for change, and so on). If the firm's upper managers are familiar with external business models, they may use those as analogies in order to obtain strategic recommendations and advice which can be used to design an effective strategy, understand complex management issues, create the need for change, exploit new opportunities to achieve competitive advantages, and so on. Thus, managers have an advantage when they have accumulated a wealth of knowledge about other business models along with life experiences that may come from their past job experiences, participation in development programs with case-oriented methodology, and being part of business workshops and congress. This information could be used as analogies for undertaking organizational changes to meet daily challenges faced by the firm.

Originality/value – The current literature does not address the different distances of analogies and how they are related to the magnitude of organizational changes. This study emphasizes the importance of the type of analogy being used as a tool to build the firm's business model. The concept of analogical distance has not been discussed in management literature.

Keywords Analogy, Distance, Strategy formulation process, Organizational change, Renewal strategy, Managers

Paper type Research paper

This research was partially funded by a grant from the Industrial Engineering Department of the Catholic University of Chile to collect the data and visit professor Alvaro Cuervo-Cazurra in the University of South Carolina (USA) from whom the authors received a great amount of recommendations. The authors have also greatly benefited from suggestions made by the anonymous reviewers of this paper, and they thank them all.

Journal of Organizational Change Management
Vol. 25 No. 1, 2012
pp. 163-185

0953-4814
DOI 10.1108/09534811211199646

Introduction

The process of change implementation is a critical task for all firms that pursue to develop and maintain a competitive position in their industries (Burke, 2002; Zajac *et al.*, 2000; Weick and Quinn, 1999; Banker *et al.*, 1996). The successful implementation of organizational changes depends on countless factors that should be identified and analyzed in order to align the required efforts, resources, and capacities (Rajagopalan and Spreitzer, 1996). The majority of specialized literature on organizational changes argues that to succeed in the process of implementing organizational changes certain individual, group, and organizational capabilities are needed which are critical at that moment, and some of those capabilities area related to leadership, teamwork, conflict management, change resistance management, negotiation, and communications management (Burke, 2002; Denis *et al.*, 2001; Greenwood and Hinings, 1993, among others). Despite the importance of the aforementioned factors, the literature on organizational changes have not discussed, until now, the importance of the analogical origins of changes that are undertaken by firms. The only discussion about the utility of the analogical perspective in strategy management literature has been mainly covered in issues related to strategic decision-making, organizational systems and structure, and environmental simplification (Cohen *et al.*, 1972; Beer, 1979, 1981; Tynan, 1997; Keeley, 1980; Gavetti *et al.*, 2005; among others) but not about its usefulness in explaining issues associated with organizational changes. The intent of this study is to fill this gap explaining and determining from an analogical point of view why a firm opts for implementing changes with certain magnitude and to identify the reasons why the firm follows a given strategic route in relation to the types of changes implemented in the short- and long-term.

Many disciplines (e.g. sociology, psychology, social psychology, anthropology, management, and others) have dedicated significant time to research different phenomena related to organizational changes (Burke, 2002; Rajagopalan and Spreitzer, 1996). The fruitful production of models, frameworks, approaches, and processes has had a large practical impact on organizational managers and leaders (Weick and Quinn, 1999). In the psychology field, for instance, the cognitive approach arose as an alternative response to the many phenomena related to organizational changes. Within the cognitive model of organizations is the analogical approach that until now has been demonstrated as being a powerful theoretical tool for explaining many managerial issues and we are confident that it should also be a useful way to point out an alternative view which explains why firms decide to implement a certain magnitude of changes (Gavetti and Rivkin, 2006, 2005).

Multiple applications of the analogical approach have been used in business administration, and the contribution of this approach in understanding complex management aspects, is recognized by numerous international experts and researchers (Gavetti and Rivkin, 2005). The analogical model, unlike other tools proposed in cognitive literature (e.g. dominant logic, heuristics, meta-learning, metaphors, schema, cognitive maps and mental models), can be used to analyze complex administrative issues related to key aspects in the strategy management field, knowledge management field, organizational theory and so on (Gavetti and Levinthal, 2000; Fredrickson and Iaquinto, 1989).

The principal argument of this study is that the scope or magnitude of changes implemented by a firm's managers are highly based on, and originated from the type of analogical business model used while upper manager are formulating the organizational strategy. This was studied by analyzing 70 firms of different sizes and from a variety of industrial sectors. The primary data was gathered through a survey applied to top managers. We then analyzed several multiple regression models to test three hypotheses posed herein. A variety of practical and theoretical implications related to the echelon theory, strategic renewal approach, knowledge-based view of the firm, cognitive theory, and storytelling theory of organizations are identified and discussed at the end of the study.

Organizational changes

The changes executed by a firm are usually the result of a decision-making process that the firm formulates or designs with anticipation (Rajagopalan and Spreitzer, 1996) in order to accomplish a competitive advantage in the industry (Burgelman, 1991). The implementation of the majority of these changes requires important modifications to both the nature and configuration of organizational resources (economic, human, technological, information, and administrative), having a clear strategy plan to manage potential role conflicts and to minimize the resistance to changes within the firm.

The organizational change literature identifies two majors scopes of change that a firm may decide to implement: high-magnitude (radical) changes and low-magnitude (incremental) changes (Burke, 2002; Hage, 1999; Weick and Quinn, 1999; Henderson and Clark, 1990). Radical changes, also known as second-order, revolutionary, transformational, strategic, episodic, discontinuous, and total system changes are irreversible, large-scale changes in the nature and configuration of organizational resources (Greenwood and Hinings, 1993; Gersick, 1991), and all of them imply a huge change in people's mental set (attitude, behavior, and values). Most of the radical changes imply undertaking changes in the core businesses, mission, leadership style, organizational culture and type of organizational structure which are all associated with important strategic redefinitions and commitment with regard to resources and capabilities (Burke, 2002; Ghemawat, 1991). On the other hand, incremental changes, also known as first-order, evolutionary, transactional, operational, continuous flow, continuous, and local option changes – e.g. total quality management (TQM) – are small alterations in the organizational setting which may include changes in administrative and operational processes, automation systems, technology information systems, product design process, quality certification, and so on; all of these types of changes require resources and capabilities that can be modified or reversed once their implementation has begun (Del Sol, 2006). Obtaining, maintaining, and developing a certain level of competitiveness in a firm is directly related to a culture of changes, whose results are likely to directly affect the improvements in the organizational performance (Zajac *et al.*, 2000; Weick and Quinn, 1999). The accomplishment of a highly competitive position in the industry rests mostly on the firm's top management team whom should decide the scope or magnitude of organizational changes to be implemented in the future, those changes are identified and designed while the upper mangers are working on the process of strategy formulation. Therefore, it is highly likely that the use of certain types of analogies during the process of strategy formation will constrain the level or scope of the changes being implemented during the strategy implementation process.

Scholars of organizational change report that the implementation of changes in the firm is a highly complex task requiring upper managers to develop multiple organizational capabilities and make commitments of several types of resources in large quantities that are often irrevocable (Eisenhardt and Zbaracki, 1992; Ghemawat, 1991). Because of this complexity, several experts in the strategic management field such as Mintzberg (1978), Ansoff (1991), Burgelman (1996), Garvin (1998), Mintzberg and Lampel (1999), Del Sol (2006), and Bower and Gilbert (2006), among others, have recommended the use of different methods, models, approaches and perspectives at the moment of formulating strategies for change. At least twelve models have been recognized (see Mintzberg and Lampel (1999) for a detailed description of a different model of the strategy-making process; Hart, 1992), among which the cognitive approach is one of the most used, discussed and known (Hitt and Tyler, 1991).

According to the cognitive approach, despite the varied reasoning and perception capabilities existing among upper managers of a firm, the level of understanding and comprehension, upper managers have of a large amount of gathered data about the firm and its environment is limited because of the boundary of rationality (March and Simon, 1958; Fredrickson and Iaquinto, 1989), and with these limitations they design and implement changes facing the challenge of managing people's conflicts and resistance. The process of strategy formulation, and therefore the designing of organizational changes, in spite of only being constrained by the external environment (Rumanelli and Tushman, 1986), it is also believed to be controlled and constrained by the managerial orientation created by perception, need, values, experience, expectation, knowledge and the cognition of top managers (Hitt and Tyler, 1991).

A model of organizational changes built on the normative model of strategic decision-making has been labeled strategic choice view (Child, 1972) which suggests that upper managers really matter regarding the type and magnitude of organizational change decisions (Hitt and Tyler, 1991). Based on this, manager's perception, cognitive abilities, values, and evaluation are critical at the moment of deciding about the magnitude and scope of the changes that the firm needs to implement, all of this is also aligned with the upper echelon theory of the firm (Hambrick and Mason, 1984). Therefore and given that analogical thinking is part of the cognitive approach of the strategy making process, this study argues that the scope of organizational changes are determined by the different types of analogies used during the strategy making process.

Analogical perspective

Definition of the analogies

By definition, analogies are all those cognitive processes by which a group of managers of a firm design a solution for a current problem through the use of similar external models that result in a set of ideas and recommendations (Farjoun, 2008; Gavetti *et al.*, 2005; Chen, 2002). Although not all analogies are equally useful, in general and as such was explained above, they offer a variety of benefits in areas related to strategic selection, innovation, communications, and the simplification of complex and new problems (Gavetti and Rivkin, 2005). Analogies are learned through individual work experiences and they are stored in the individual memories of the upper management team. As was previously stated, the study of analogies belongs to the cognitive theory of organizations, arguing that upper executives responsible for strategic decisions possess rational limitations in understanding the multiple factors that come into play within their environment. Therefore, these managers use a variety of tools (i.e. schemas, heuristics, models, mental maps, and analogies) in order to simplify ideas, events, and information into comprehensible ideas that can facilitate the decision-making processes (Tripsas and Gavetti, 2000; Calori *et al.*, 1994; Fiol and Huff, 1992; Hitt and Tyler, 1991).

Use of the analogies

Scholars and practitioners from various social sciences (i.e. management, sociology, education, marketing, social psychology, and communication) and other disciplines (software design, technology, medicine, and so forth) have recognized the usefulness of analogies (Gibson, 2008; Dahl and Oreau, 2002; Peterson, 1997; Stapel and Spears, 1996; Tsoukas, 1993; Morgan, 1980). Its application within organization theory is not new (Pinder and Bourgeois, 1982; Keeley, 1980; March and Simon, 1958; Penrose, 1952), and in the strategic management field, analogies have been especially important to analyze issues such as an organization's structure, decision making process, innovation, and other relevant topics. For instance, the garbage-can analogy help to explain the process of decision making (Cohen *et al.*, 1972), the human nervous system analogy helps to explain the complexity of an organization, and the social-contract analogy helps to explain business organizations (Beer, 1979, 1981; Keeley, 1980; Tynan, 1997). Analogies have also been used as a mechanism to simplify novel and complex organizational environments (Gavetti *et al.*, 2005), which is very useful when top managers are facing the process of strategic decision making.

Adding to the previous analogy's value highlighted above, analogies as external business models may be used as important components of the current storytelling systems in the form of business cases and firm stories which are accumulated in the organization memory (Boje, 1991) and they are used to make sense of certain strategic decisions taken by other firms' top management teams existing in the same or different industry located inside of the same country or in other different countries. This extension of the storytelling theory has not been pointed out in the current literature because this approach has only considered stories performed within the firm about issues related to the firms system, but not business stories outside of the firm. On the other hand, and finally, analogies may be an important means to communicate complex issues regarding changes to be implemented during the process of strategy renewal and adaptation. In the strategy renewal context, it is critical to institutionalize new competences, values, strategic behaviors, and attitudes within the firm, all of which are important factors in order to decrease the level of conflict among the firm's human resources during the process of strategy renewal (Burgelman, 1991; Huff *et al.*, 1992; Floyd and Lane, 2000). Analogies are important means to transfer and socialize critical patterns and strategic behaviors and to align people's mental sets with regard to many aspects of the changes positively affecting the level of conflict and resistance of changes.

Most of the degree of applicability and usefulness of an analogy depends on the top managers' abilities to identify and gather those critical patterns and features of an external model that may be applied to resolve a current problem within the firm. In other words, the analogical thinking of upper managers is going to be useful when they are able to get and understand the key features and patterns of some external model that can be applied to their firm in order to formulate its strategy. Therefore, a manager should have the competence to identify and choose those patterns from the external model and apply them to the firm in order to develop and design a strategy for the firm, which is going to lead to implementing a certain magnitude of changes.

Summarizing, in spite of the high level of applicability of the analogies in several issues belonging to strategic management (strategy design, simplifying complex environmental issues, strategy renewal, firm's storytelling system, strategic decision making processes, knowledge creations, and so on), analogical perspective has not been applied in organizational change literature explaining why firms' upper managers decide to implement either evolutionary or revolutionary changes in order to sustain their competitive advantage among their competitors. This study attempts to fill this gap explaining how the analogical view is a valid perspective with which to set the foundations and explain the magnitude of changes implemented by the upper managers in the firm.

Distance of the analogies

Gavetti and Rivkin (2005) made an important extension, explaining the strengths and weaknesses of using analogy in the process of decision making, and also the anatomy and quality of analogy. In an organizational context, the usefulness of an analogy depends on three dimensions: its breadth, depth, and applicability. A manager's analogical breadth refers to the diversity of analogical models accumulated in the memories of a firm's managers and that can be used to identify guidelines and suggestions for the firm. For instance, a manager who has worked in different types of firms (e.g. public and private, service and manufacturing), in different industries (e.g. banking, maritime shipping, shoe manufacturing), in different countries (e.g. England, Chile, Spain, USA, Germany), and in different managerial positions (e.g. middle and upper management) has a wide analogical breadth. On the other hand, manager's analogical depth refers to the level of details regarding to the facts and features of an analogy that a given manager remembers. For example, business models of successful firms analyzed in university classes are forgotten with time and many of the details of those study cases are gradually lost. Finally, analogical applicability refers to the analogy's degree of utility for understanding, simplifying, and comprehending useful recommendations for a firm's current problem. This applicability depends on how close or distant an external model is to the reality of the firm where it is to be applied.

Because of this last dimension it is possible to observe a new concept that we labeled as analogical distance that will be presented herein. Analogical distance refers to the degree of closeness between an external model and the reality of the firm that needs to solve some critical current problem. In general terms, the concept of distance has been widely used in international business literature to define the psychic distance that exists between countries (Ricart *et al.*, 2004; Ghemawat, 2001; Sullivan, 1994) and in the organization theory literature explaining the institutional theories of firms to define the distance that exists between institutions of the same industry and how they tend to imitate or differentiate themselves in order to define their strategic positions (Khanna and Palepu, 2006).

The concept of distance has not yet been incorporated into the literature on analogies. Herein, this concept constitutes a central element for explaining why some firms decide to make certain decisions related to the magnitude of changes and others do not. External business models used as analogies that are quite similar and applicable to the current situation-problem of the firm are considered to be short-distance since their features, characteristics, and patterns are very similar to the problem at hand. On the other hand, external business models used as analogies sharing few similarities and with low applicability given the situation-current problem to be solved are considered to be long-distance. The different types of analogy distances can be easily observed by identifying the industrial and geographic origins of external business models that are used as analogies. These business models can come from four external sources:

(1) firms belonging to the same industry and located in the same country;
(2) firms belonging to the same industry and located in different countries;
(3) firms belonging to different industries and located in the same country; and finally
(4) firms belonging to different industries and located in different countries.

Considering these four sources and based on the two attributes (industrial belonging and country location) allow us to classify the distance of an analogy into three types: long-, medium-, and short-distance analogies. In the following paragraphs each one is explained with certain details.

Short-distance analogies are business models obtained from firms located in the same country and belonging to the same industry. For example, the managers of Falabella Retail SA obtain important recommendations for their marketing model by observing and studying the Ripley Retail SA's marketing strategy (both are Chilean retail firms), and Google used the business model of Yahoo as a guide for its business strategy (both are Internet firms in the USA). In these two cases, the degree of nearness between the firm that is designing its strategy and the external firm that owns the business model (direct competition) is very high. The two firms share many similarities in terms of client type, market segment, types of products, post-sale services as well as other features..

Long-distance analogies are business models that come from firms belonging to a different industrial sector and are located in different countries. For example, the managers of LAN SA, a pioneering firm in the air transport industry of Chile, used the business model of Wal-Mart, a North American retail firm, to broaden its operations into other Latin American countries. In this case, both the industry and country of origin of the firm that is designing its strategy differ from those of the firm used as an analogical model, making it difficult for the directors of LAN SA to find management features and patterns that could be converted into sources of useful guides and recommendations for the design of its strategy. In general terms, the information obtained from long-distance analogies may be considered as general and broad information and, in a certain way, highly ambiguous in terms of its application.

Medium-distance analogies are business models that come from a firm that shares either an industrial area or a country of origin with the firm designing its strategy. A first case includes those business models belonging to firms from different industrial sectors but located in the same country. For example, Ford (an automotive industry firm in USA) uses a Dell business model (a computer industry firm in USA), and Intel (a computer industry firm in USA) uses a business model applied by metallurgical steel industry firms in the USA (see Gavetti and Rivkin, 2005, for more details of these examples). The second case includes those business models that come from a firm belonging to the same industry but located in different countries. For instance, many Chilean winemakers (e.g. Vinos Concha y Toro, Vinos Undurraga, and Vinos Santa Rita, all of them considered among the best wines in the world) have successfully used models from businesses of the Californian (USA) winemakers; also, Cementos Bio-Bio SA, a Chilean firm that sells 32.5 percent of the cement used in the Chilean construction industry, used the strategic model of CEMEX, a Mexican firm in the same industry. In the two previous cases (different-industry/same-country and same-industry/different-country), we observed a certain nearness between the analogical model and the firm needing to design its strategy; since the firms share certain features or attributes, the distance level is considered to be medium, because they share certain patterns in terms of either industrial belonging or geographic location.

In the following paragraphs, three hypotheses are discussed that make the foundation of this study arguing that the magnitude of organizational change is determined by the distance of the analogies used during the strategic formulation process.

Analogical foundations of the scope of the changes: hypotheses

Short-distance analogies and the magnitude of change

Firms generally manage a good deal of information, for instance, price strategies, product breadth and depth, internal processes, operational and administrative costs, about their direct competitors in the same country. The systematic monitoring of the direct competition allows a firm to obtain useful information identifying good practices to be used consequently to implement internal changes in order to improve organizational performance. In most cases the information gathered from direct competitors results in the implementation of incremental and continuous organizational changes in the areas of production, administration, logistics, and sales. The decisions resulting from this type of evaluation allow the firm to adapt to the exigencies of the market and direct competition, but it does not lead to obtaining ideas and recommendations that will generate large and revolutionary changes in the firm. In other words, the use of short-distance external business models as analogies is highly likely to result in the implementation of low-magnitude changes, because most of the information gathered from the direct competitor are not breaking-thoughts which may lead to identify strategic and radical changes; Features and patterns of direct competitors are not good sources for capturing ideas that may lead to implement radical changes, but only small improvements in the current strategy of the firm. For example, it is interesting to observe how foreign firms behave when they enter into a new country. In order to be competitive, foreign firms adapt their strategy, organizational structure, operational process, and so on, to different local markets by designing a business model that in certain ways is very similar to that of their direct local competitors. Generally, a foreign firm does not provoke large changes in products, pricing strategies, forms of purchasing, or types of services until they have obtained a certain market share (Ricart *et al.*, 2004). After getting to know the market (likes and preferences of the clients, habits and forms of purchasing, etc), the foreign firm can then undertake more significant changes in order to better position its brand and products (Prahalad and Doz, 1987). In sum, the use of short-distance analogies during the process of strategy making process is highly likely to result in the implementation of incremental changes, and for this reason the following hypotheses are presented:

H1. Short-distance analogies used in the process of strategy formulation result in the implementation of incremental changes in the firm.

Medium-distance analogies and the magnitude of change

On the other hand, revolutionary changes will be implemented when a firm obtains critical information regarding patterns, features and successful strategic behavior used by external business models of a firm belonging to the same industry but located in another more competitive country. Two emblematic Chilean cases reflect this pattern of strategic behavior. First, the development strategies of Chilean firms in the wine sector have followed the lines of the Californian wine industry, resulting in radical changes in the areas of production, storage, conservation, and distribution for these Chilean wine firms. Most of the ideas gathered from the California winemakers, French winemaker and Spanish winemakers by the Chilean winemakers have been a critical source of ideas to develop and maintain a highly competitive position in the world wine industry. Second, the Chilean cement firm, labeled Cementos Bio-Bio SA, has used the business model of CEMEX, a Mexican firm in the same industry to implement large-magnitude changes in its organizational structure, information technology systems, management control systems and styles, human resource management, and the management of operations. When a firm considers the use of a foreign business model, it looks to countries that are as or more developed than its own country of origin, which also leads to the implementation of radical changes in the firm.

Not only is it possible to find breaking-thoughts from same-industry/different-country external business as analogies, but also when a firm observes an external model of a firm located in the same country and belonging to a different industry where it is possible to gather highly strategic information that may lead to implementing radical changes. For instance, many banking, insurance, and local real estate firms have taken many useful strategic information that is possible to observe in certain strategic functions, for instance, the introduction of new products (i.e. credit cards) in local firms belonging to the departmental shopping business which have created a very profitable convergent financial businesses. Therefore it is possible to obtain a large amount of critical information that emerges from the features and patterns used in firms located in the same country but belonging to a different industry which may lead to implementing radical changes. Gavetti and Rivkin (2005) gave important details about the two cases that reflect how local firms take strategic information from firms of other industries to design radical changes. For instance, Ford (a North American automotive industry firm) uses many features and patterns of the Dell business model (a North American computer industry firm) which lead to implementing revolutionary changes, and Intel (a computer industry firm in USA) uses critical information from the business model applied by steel industry firms in the USA. Based on the previous arguments of the two above paragraphs it is possible to state a second hypothesis as follows:

H2. Medium-distance analogies used in the process of strategy formulation result in the implementation of radical changes in a firm.

Long-distance analogies and the magnitude of change

Finally, the use of external business models that are considered to be long-distance analogies result in a great deal of information that is of little use in terms of recommendations and ideas that can be used to design the firm's strategy. The reason is that it is not easy to apply features, patterns, and characteristics that are key items in the success of a given external firm when this belongs to a different industry and is located in a foreign country in relation to the firm wishing to use the analogy. Since the nature and DNA of firms can differ substantially, it may be confusing and even risky to use recommendations from a highly dissimilar firm (Gavetti and Rivkin, 2005). Nonetheless, it is possible to obtain general ideas from long-distance analogies that can be used to implement small improvements in different areas of an organization. Therefore, when a firm uses long-distance analogies, it will end up implementing incremental changes because the strategic information gathered is not, in most cases, useful to design huge organizational changes. Finally, when the psychological distance between a domestic firm and another firm which belongs to a different country and industry is large enough, it is going to demand great effort from the top managers in identifying patterns and strategic behavior to be applied in a firm's current problem. For this reason it is possible to argue that the information obtained would be general and with little applicability to the current strategic issue experienced by the firm. Without giving less importance to the precedent argument, we know some isolated cases where firms have undertaken innovative changes after taking ideas from firms that are totally different. Therefore, according to the previous arguments it is possible to state the following hypothesis:

H3. Long-distance analogies used in the process of strategy formulation result in the implementation of incremental changes in the firm.

All the above arguments have showed that the magnitude of the changes implemented by a firm will be grounded in the amount of the analogy's distance used while the upper managers design the organizational strategy for change.

Method

Sample

The three hypotheses of this study were analyzed using a primary data base gathered by applying a survey to chief executive officers (CEO) from a sample equal to 325 firms, which was obtained by using a random sample method. From this sample, 70 firms were chosen belonging to the 500 largest in Chile, published annually by the Diario Financiero. Even though the sample size is small, it is a little higher than Harzing's (2001) findings recommend for countries in Latin America. She found that geographical and cultural differences negatively influence the response rates, and managing directors from Latin American firms had very low response rates. For instance, the response rate for countries from Latin America should be between 12.9 percent and 15.2 percent in order to have statistically reliable data. This study has a response rate of 21.5 percent (70/325), which is higher than the minimum recommended. The sample included 43 national and 23 foreign firms from a variety of sectors (manufacturing, financial services, transport, etc (see Table I). The 70 firms were selected among the 325 firms according to the following criteria:

- the CEO of the firm had participated in a program-workshop on the design of business strategies developed by the Pontificia Universidad Católica de Chile; and
- the CEO of the firm had been a student (undergraduate or graduate) of the Pontificia Universidad Católica de Chile.

This facilitated the interview process and helped create an environment of trust between the interviewee and the interviewer.

Instrument

The survey was carefully constructed following Nunnaly and Bernstein's (1994) recommendations, which was an 88-question survey designed after reviewing literature on the use of analogies in the management field, the process of designing business strategies, and organizational changes. The survey had three types of questions: general questions, questions about the use of analogies, and questions on the types of organizational changes implemented. The survey was first applied to a pilot sample and some changes were made in the writing and presentation.

The survey was applied directly to the CEO of the firms in the form of interviews conducted by three graduate students. The interviewers were knowledgeable in the study matter and had educational levels that permitted excellent affinity with the interviewees. Some surveys were sent by e-mail; these were later checked rigorously to validate their responses and origins. The close relationship of the CEO with the Pontificia Universidad Católica de Chile was helpful in motivating participation in the study and allowed us to gather data of high reliability, quality and internal validity.

Measurement of the variables

Independent variables. The distance of the analogies was measured through the application of dummy variables and three groups of questions included in the survey (see Appendix, Figure A1). First, the type of firm or business was identified: (A1) part of a multinational corporation headquartered in a developed country, (A2) part of a multinational corporation headquartered in Chile, or (A3) part of a local firm or holding. Second, the industry of the external business model used as an analogy was identified: (B1) the current business model of the firm comes from a firm of the same industry, (B2) the current business model of the firm comes from a firm of a different industry, (B3) the past business model comes from a firm of the same industry, and (B4) the past business model comes from a firm of a different industry. Third, the country of origin of the firm owning the external business model used as an analogy

Type of industries	Sub industrial sectors	Number of firms
Production	Forest, agriculture, fishing, mining, and manufacturing	16
Services	Retail, transportation, communication, electricity services, gas service, facility services, and public services	11
Financial and real state	Construction, financial services, banking, insurance services, and real states	43

Table I.
Types of industries included in the sample

was identified: (C1) the business model belongs to a firm headquartered in USA, Europe, or another developed country, (C2) the business model belongs to a firm headquartered in Chile, (C3) the business model belongs to a firm headquartered in a Latin American country, and (C4) the business model belongs to a firm headquartered in another underdeveloped country. These three groups of questions were used to calculate the distance (short, medium, or long) of the analogies according to the logical criteria given in Table II.

Dependent variables. Two items of the survey were designed to determine whether the firm implemented radical or incremental changes, respectively: "The meeting to design the strategy resulted in the creation of a creative and distinctive strategy" and "The meeting to design the strategy resulted in the implementation of continuous improvements (TQM) in the firm". Responses were given using an ordinal scale, from 1 (strongly disagree) to 4 (strongly agree).

Control variables. We used several control variables, including external environment factors such as types, uncertainty, rivalry, and novelty of the industry; and a few internal variables of the firm, such as size of the firm and heterogeneity (professional and hierarchical) of the top management team (Papadakis *et al.*, 1998). Scholarts argued that any strategic decisions, and therefore the designing of organizational changes, not only is constrained by the external environment (Rumanelli and Tushman, 1986), but also is controlled and constrained by internal variables related to the firm (Hitt and Tyler, 1991).

Results

The correlation matrix revealed several interesting results. First, the type of industry was significantly related to the level of uncertainty ($r^2 = 0.129$, p-value < 0.05), novelty ($r^2 = 0.257$, p-value < 0.05), and rivalry ($r^2 = 0.071^*$, p-value < 0.5) such that all the firms selected for the study were found to come from different industries, each of which is clearly differentiated by its level of uncertainty, rivalry, and novelty. This result is important in order to eliminate any presence of industry biases. When a sample size has a high level of heterogeneity in terms of industries with different nature and characteristic it is good for the validity of the result found of this study. Second, many of these industrial features were correlated with the different magnitudes of change implemented. For example, the firms that belong to industries having a high level of novelty decided to implement high-magnitude changes, whereas

Analogy distances	Criteria used (1 indicates that at least one of these conditions was met)	Number of firms
Short	(i) A1 = 1 and B1 = B3 = 1 and C1 = 1; or (ii) A2 = 1 or A3 = 1 and B1 = B3 = 1 and C2 = 1	33
Medium	(i) A1 = 1 and B1 = B3 = 1 and C2 = 1; or (ii) A2 = 1 or A3 = 1 and B1 = B3 = 1 and C1 = 1; or (iii) A1 = 1 and B2 = B4 = 1 and C1 = 1; or (iv) A2 = 1 or A3 = 1 and B2 = B4 = 1 and C2 = 1	29
Long	(i) A1 = 1 and B2 = B4 = 1 and C2 = 1; or (ii) A2 = 1 or A3 = 1 and B2 = B4 = 1 and C1 = 1	8
		70

Table II.
Criteria for measuring the distances of the analogies used

the firms belonging to industries of high uncertainty decided to implement incremental changes. This result is in the direction of many findings of previous studies that have argued that the environment is responsible for constraining the strategic decisions of the firms, which is the main argument of the population theory (Rumanelli and Tushman, 1986; Child, 1972) of the firm, and also of the institutional theory of the firm (Khanna and Palepu, 2006). Third, the size of the management team participating in the design of the strategy was positively correlated with incremental changes, revealing the decision to implement changes of continuous improvement were more likely when a larger managerial team participated in the formulation of the strategies. This agrees with the results of other researchers (Denis *et al.*, 2001; Boeker, 1997; Rajagopalan and Spreitzer, 1996), since larger teams are associated with greater work of discussion, negotiation, and participation, leading to decisions that involve lower-magnitude changes.

The results of the two multiple linear regression models shown in Table III were used to test the three hypotheses of this study. For both models, the dependent variable was the magnitude (incremental or radical) of the changes implemented. We found that those firms using short- or long-distance analogies implemented incremental changes and those using medium-distance analogies implemented radical changes. This result allows us to validate the three hypotheses stated above, affirming that the origin or basis that explains the reason why some firms have decided to implement certain changes of a given magnitude is determined by the distance of the analogies used during the period in which the firm's business strategy was designed. This result is highly noteworthy due to the fact that, in general, the strategic behavior of the firms studied was given by the degree of distance or closeness of the analogies used while designing their strategies. This aspect has not previously been discussed in the literature.

Finally, the results of the two multiple quadratic models shown in Table IV highlights the results previously found. Thus, when top managers use short-distance analogies and large-distance analogies during the strategy making process of the firm are more likely to finally implement low-magnitude changes, but when top executives take information, ideas, and recommendations that emerge from external business models with medium distance are going to decide on implementing more radical changes within the firm.

To obtain the multiple quadratic model we needed to create a unique variable called "distance" where the following values were assigned depending on the type of distance obtained:

- if top managers used short-distance analogies;
- if top managers used medium-distance analogies; and finally
- if top managers used long-distance analogies.

Also, to calculate the coefficient regression, those control variables that belonged to the external environment (type of industry, rivalry, novelty, and uncertainty) were taken out and only significant internal variables of the firm (the size of the executive team) were maintained in the quadratic model.

In Figure 1 the two curves can be easily observed, one graphs the quadratic equation of the radical changes and the other graphs the quadratic equation of the incremental changes (see Table V). The former achieves its maximum level when the

Table III. Means, standard deviations (s.d.), and Pearson's correlations

Variables	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12
1. Short-distance	0.471	0.503	1											
2. Medium-distance	0.400	0.491	0.004	1										
3. Long-distance	0.129	0.337	−0.016	0.007	1									
4. Uncertainty of the industry	0.26	0.44	0.046	0.088	0.112	1								
5. Rivalry of the industry	0.79	0.41	−0.089	−0.126	0.000	−0.171	1							
6. Novelty of the industry	0.14	0.35	−0.086	0.160	−0.020	0.227	−0.384**	1						
7. Type of industry	1.83	0.74	−0.103	−0.156	−0.134	0.129*	0.257*	0.071*	1					
8. Hierarchical heterogeneity of the TMT	0.63	0.49	−0.008	0.126	0.189	−0.089	−0.113	−0.109	−0.139	1				
9. Professional heterogeneity of the TMT	0.36	0.48	−0.046	0.059	−0.013	−0.097	−0.192	0.122	0.093	0.388**	1			
10. Number of executives of the firm	3.37	1.11	0.072	−0.056	0.182	−0.080	0.124	−0.180	0.159	0.095	−0.037	1		
11. Participation of executives in PFE	2.49	0.74	−0.084	−0.038	0.208	−0.087	0.080	−0.076	0.085	0.342**	0.023	0.556**	1	
12. Radical changes	0.884	0.322	−0.288	0.198**	0.140	0.0566	0.651*	0.754**	0.975*	0.753*	0.453*	0.054	−0.865	1
13 Incremental changes	0.814	0.392	−0.264**	0.015	0.274**	0.731**	0.076	0.965*	0.864	0.123	0.543	0.619**	0.875**	−0.936**

Notes: $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$; $n = 70$ firms

Variables	Model 1 Incremental changes B	SE	Model 2 Radical changes β	SE
(Constant)	−0.579	0.577	−0.233	0.603
Short distance	*0.198***	0.089	0.087	0.093
Medium distance	−0.040	0.049	*0.118**	0.051
Long distance	*0.192**	0.080	−0.015	0.083
Uncertainty of the industry	0.271**	0.281	−0.207	0.294
Rivalry of the industry	0.227**	0.321	0.023*	0.335
Novelty of the industry	0.123*	0.393	0.558**	0.411
Type of industry	0.126*	0.072	0.557*	0.411
Hierarchical heterogeneity of the TMT	0.238**	0.298	0.234**	0.311
Professional heterogeneity of the TMT	−0.253	0.274	−0.045	.0286
Number of executives of the firm	0.093**	0.171	−0.014	0.179
Participation of executives in SFP	−0.032	0.213	0.042*	0.222
F	3.98**		3.87*	
R^2	0.79		0.86	
R^2 adjusted	0.71		0.75	
n	70 firms			

Notes: Results of Tables II and II were obtained by using SPSS. TMT: top management team; SFP: Strategy formulation process; $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$

Table IV. Results of the multiple regression analysis using OLS: national and foreign firms

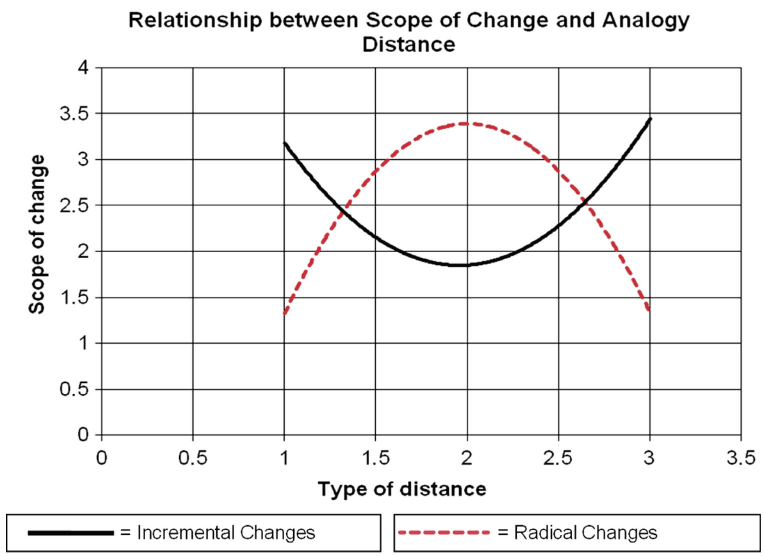

Figure 1. Radical and incremental changes associated with three types of analogy distances

top management team (TMT) uses a medium-distance analogy (the value equal to 2) and its minimum level is accomplished when TMT uses either short-distance analogy or long-distance analogy during the process of strategy design. The other graphic shows the quadratic equation of incremental changes in which the minimum level is achieved when the TMT of the firm use medium-distance analogies, and the maximum level is achieved when the TMT of the firm use either short-distance or long-distance analogies. This last graphic may be a little contradictory with reality, in the sense that organizational consultants and advisors who are dedicated to help the enterprises to plan and implement changes always find ideas and recommendations to be implemented in the form of incremental changes, no matter whether the external business is near or is far away from the reality of the firm. Considering this last issue taken from the reality leads us to think that the form of the second graphic should be more lineal instead of curved. This last antecedent requires a more advanced study for future research In spite of this last weakness in the second graphic, the two curves strongly support the three hypotheses stated in this study.

Conclusions and discussions

The central objective of this study was to understand as thoroughly as possible the reasons behind the when and why of the magnitude of changes implemented by a given firm. Our field study showed that the changes to be implemented are originally defined during the design of the firm's strategy, and the magnitude of these changes is determined by the distance of the analogy used during this process. Three decades ago, Fredrickson (1983) and another group of researchers (Mintzberg, 1978; and others) highlighted the importance of studying the relationship between the strategy formulated (intended strategy) and that executed (realized strategy). The present study is an empirical and conceptual approach for explaining the nexus between the design process of the organizational strategy and the implementation of organizational changes (i.e. realized strategy) determined during the process of strategy design. Although this issue has not been given much attention as yet, the present study attempts to provide an explanation for this relationship. By using the analogical approach to argue the mechanism that explains how top managers design their business models using different analogies as tools, we were able to find an interesting explication by grouping the analogies in function of their degree of distance and the magnitude of the resulting organizational changes.

In short, this study demonstrates that a firm will implement mainly incremental changes when following short-distance analogies (highly similar external business model) and long-distance analogies (very different external business models). However, radical changes are implemented when using medium-distance analogies. This finding supports many previous studies that present the usefulness of analogical thinking to

Table V. Results of the multiple quadratic regression analysis using OLS: national and foreign firms

	Radical changes		Incremental changes	
Independent variables	B	SE	β	SE
Constant	-5.024^{**}	0.711	7.801^{**}	0.833
Distance	8.206^{***}	0.851	-5.617^{***}	0.987
Distance^2	-2.049^{***}	0.0226	1.432^{***}	0.266
Number of top managers of the firm	-0.003^{*}	0.123	-0.009^{*}	0.111
F	24.524^{***}		8.632^{***}	
R^2	0.601		0.347	
R^2 adjusted	0.577		0.307	

Notes: $^{*}p < 0{,}05$; $^{**}p < 0{,}01$; $^{***}p < 0{,}0001$; $n = 70$ empresas explain different issues in many social sciences, such as strategic management, marketing, sociology, knowledge management, and so forth. In spite of the great utility of the analogies it is important to highlight that its use should be done with care, because not all analogies have the power to help and give advice in understanding the managerial issues of a firm, and its utility is highly related with the cognitive capabilities of the TMT for identifying and using the critical and strategic features observed in the external model that can be applied to a current situation of a firm.

Limitations and implications

Limitations

The three types of analogical distances, short-, medium-, and long-distance analogies, were defined using two dimensions: industry origin and country origin. These two dimensions are not the only way to categorize the distances of existing analogies or external business models but it is possible to define the distances of analogies using other dimensions, such as the level of development of the country where the firm is inserted, type of culture of the country where the firm is located, size of the firm, level of dynamism of the industry that the firm belongs, and so forth. For instance, a small firm can use business models from a firm of the same size as analogies and the possibility of applying many ideas and suggestions to their current problem would be highly likely due to the similarity in size. This however would not be possible if a large firm were used. This is because small firms have many different features the large firms such as; degree of flexibility, speed of decision making, scale of economies, and so forth. Therefore, it is highly recommended to do this study using others dimensions to define analogical distance in order to verify the finding found in this study.

The second limitation of this study is its sample size. Even though Harzing (2000) found that studies made in Latin America can accept a lower response rate without affecting the statistical significance, it is highly recommended that a second effort be made using a larger sample size in order to gain more external and predictive validity in the findings obtained this study.

A third limitation of this study is related to the single measures used to measure both dependent variables. In order to gain more internally valid measures of both radical and incremental changes it is recommended to identify and develop a measure that includes several indicators that capture the entire definition of both dependent variables (i.e. content validity analysis). For instance, radical changes implemented can be measured using several indexes such as degree of reversibility of the changes, amount of the economic, financial and human resources involved, degree of changes in the firm's mission, objectives, and vision, degree of changes in the leadership style, organizational culture and organizational structure, and so on. All of these measures can be factorized in few components applying confirmatory factor analysis and structural equation modeling. The same task may be done for developing a latent variable that captures the entire definition of the incremental changes, being more internally valid.

Implications for practice and theory

The findings of this study have both theoretical and practical implications. From an empirical point of view this study suggests that top firm executives should pay special attention to those types of external business models used during their strategic formulation processes, as these models are important determinants of the magnitude of the changes to be executed in the short- and long-term. From a theoretical point of view this study highlights several theoretical issues that we will proceed to explain. First, this study set up a new concept, analogy's distance, which is conceptually and operationally defined, to be applied within the analogical perspective. This study found that this new concept is a very relevant factor that explains why certain firms decide to implement radical changes instead of incremental changes and this study found that this decision rests on the type of analogy used during the strategy making process. Second, from the beginning of this study it has been stated that the analogies themselves are a great tool applied in different disciplines of administration (Gavetti *et al.*, 2005; see the other papers), reaffirming that which has been proposed by numerous investigators in this field. However, this study allows us to broaden the proposals of many researchers, finding that the power of the analogy depends on its distance. This study proposes that the configuration of the methodology used by the managing teams of firms can be typified based on analogical distance. Although the concept of distance has been used in the discipline of international business (see Ghemawat (2001) and Ricart *et al.* (2004) for a more detailed discussion) and in the institutional theory of the firm (see Khanna and Palepu, 2006), it has not been used previously in cognitive literature to refer how the analogy distance is a critical aspect of understanding its utility and powerful, and also its application in firm management. Interestingly, analogical distance is the basic reason explaining why a firm implements continuous improvement or radical changes: top managers that use short- and/or long-distance analogies implement incremental changes and those that use medium-distance analogies execute radical changes.

Third, this study has allowed the integration of insights from three streams of research: strategy formulation process, analogical view and organizational changes, and in doing so, this study has made a few contributions to all three areas. In the SFP literature this study contributes in at least three directions. First, the critical influences of the top managers' traits on the strategic decision making process it presented in the upper echelons theory of organizations which argues that upper echelon characteristics (demographic, personality and background characteristics, psychological cognitive basis and styles, values, and so on) affect managerial perception and, therefore, strategic choices. External business models as analogies are part of the background experience accumulated in the top executive's memory that has the power to influence upper echelon orientation. The analogies background has not been considered in this theory, which is going to be a new source of differentiation among top management teams between firms of a same industry that may drive organizational performance. It has been special issues that have been pointed out in several previous studies as a need of much research and, therefore,in this study we are helping to understand this matter (Hitt and Tyler, 1991). Second, the SFP literature emphasizes the utility of the cognitive school among the other twelve existing schools (see Mintzberg and Lampel (1999) for more details), and this study gives more relevance to this school given the new concept added to this perspective related to the distance of the analogies, whose importance is explained above. Finally, the amount, types, degree of depth, breadth, and applicability of those analogies stored in the top managers' memory may be a critical source to develop competitive advantage of a firm. The knowledge-based theory of the firm argues that certain rare and novel knowledge is a key driver to obtain a higher level of competitive advantage over competitors. This study makes an extension to this theory adding a new type of background (external business models as analogies) that may be appropriately used during the SFP of the firm and may lead to the firm obtaining superior organizational performance.

In analogy literature this study makes two contributions. First, it highlights the importance of the new concept of distance and, secondly, highlights the power of the analogy as a tool to be used within the firm. Finally, in organizational change literature, this study makes a great extension in three directions. First, this study sets up a new antecedent to explain the nature and scope of the organizational changes, which have been discussed in several theories, such as life cycle, teleological, dialectical, and evolutionary theories, and other theories of organizational change (Burke, 2002). As has been discussed in this study, the distance of the analogies used during the process of strategy making influence the scope of organizational changes implemented by the firms. Second, this study allows the development of an extension to the strategy renewal approaches of the firm explaining the great utility that analogies has to communicate among the employees new strategic capabilities within the firm (Floyd and Lane, 2000). Many scholars have argued how the analogy constitutes a good tool to communicate complex issues within the firm (Gibson, 2008; Dahl and Oreau, 2002; Tsoukas, 1993) and, therefore, analogies may be an excellent tool to institutionalize the new competences and news strategies in the firm, minimizing the level of conflict in the firm's strategic roles. The use of the analogical distance is also a critical source to explore new initiatives and opportunities to pursue changes in the organization and to recognize and create the need for change observing successful external business model used as analogies by the upper managers of the firm. Moreover, the discussion among the top managers of a firm about the different external business models where it is possible to obtain strategic advice, ideas, and recommendations to be used in a current problem of the firm is going to be a critical aspect to construct the new strategic renewal route of the firms. Finally, this study allows the development of an extension to the storytelling theory where the external business cases should be included in the storytelling system of the firm. The storytelling theory argues that people in the organization engage in a dynamic process of refinement of their stories and events that take place among internal and external stakeholders (Boje, 1991). These stories are the antecedent to explain individual assumptions, decisions, and actions of the firm's people. The external business model known by top managers which are accumulated in the minds of these people are part of the stories accumulated in the firm that are going to constrain the strategic decisions of top executives of the firm. In this sense, the storytelling theory may include new types of stories in the form of external business stories that are relevant at the moment of making sense of a specific firm's current situation.

Implications for new research

The results of this work lead to new questions that should be tackled in future studies: Is it possible to create a new conceptualization of analogical distance based on criteria other than the type of industry (same or different) and type of country (same or different)? Such as was explained above, the operational definition of analogical distance proposed in this study uses the variables "type of industry" and "type of country", but other variables could be found and used as criteria for the operational definition of analogical distance. If such studies found that the analogical distance determines the magnitude of the changes implemented by a firm, is there any causal relationship between analogical distance and organizational performance? Is there any correlation between the distance of the analogies used during the strategic formulation process and the type of organizational structure? What managerial team characteristics (i.e. age, sex, stock of knowledge, experience, professions, etc) are the determinants or antecedents of the type of analogies to be used during the design process of the firm's strategic model? This last question is especially important to study since a firm needing to implement radical changes to improve its organizational performance should first deal with the issue of the composition of its team of managers, since they could influence the distance of the analogies chosen and, later, the magnitude of the changes to implement.

References

Ansoff, H.I. (1991), "Critique of Henry Mintzberg's The Design School: reconsidering the basic premises of strategic management", *Strategic Management Journal*, Vol. 12, pp. 449-61.

Banker, R.D., Chang, H-H. and Majumdar, S.K. (1996), "A framework for analyzing changes in strategic performance", *Strategic Management Journal*, Vol. 19, pp. 693-712.

Beer, S. (1979), *The Heart of Enterprise*, Wiley, Chichester.

Beer, S. (1981), *Brain of the Firm*, Wiley, Chichester.

Boeker, W. (1997), "Strategic change: the influence of managerial characteristics and organizational growth", *Academy of Management Journal*, Vol. 40 No. 1, pp. 152-70.

Boje, D.M. (1991), "The storytelling organization: a study of story performance in an office-supply firm", *Administrative Science Quarterly*, Vol. 36 No. 1, pp. 106-26.

Bower, J.L. and Gilbert, C.G. (2006), "Manage resource allocation to craft strategy", HBS Working paper 07-018.

Burgelman, R.A. (1991), "Intraorganizational ecology of strategy making and organizational adaptation: theory and field research", *Organizational Science*, Vol. 2, pp. 239-62.

Burgelman, R.A. (1996), "A process model of strategic business exit: implications for an evolutionary perspective on strategy", *Strategic Management Journal*, Vol. 17 No. 2, pp. 193-214.

Burke, W.W. (2002), *Organization Change: Theory and Practice. Foundation of Organization Science*, Sage Publications Series, London.

Calori, R., Johnson, G. and Sarnin, P. (1994), "CEOs' cognitve maps and the scope of the organization", *Strategic Management Journal*, Vol. 15, pp. 437-57.

Chen, Z. (2002), "Analogical problem solving: a hierarchical analysis of procedural similarities", *Journal of Experimental Psychology*, Vol. 28 No. 1, pp. 81-98.

Child, J. (1972), "Organizational structure, environment and performance: the role of strategic choice", *Sociology*, Vol. 6, pp. 2-22.

Cohen, M.D., March, J.G. and Olsen, J.P. (1972), "A garbage can model of organizational choice", *Administrative Science Quarterly*, Vol. 17 No. 1, pp. 1-25.

Dahl, D. and Oreau, P. (2002), "The influence and value of analogical thinking during new product ideation", *Journal of Marketing Research*, Vol. 39 No. 1, pp. 47-60.

Del Sol, P. (2006), *La Máquina Social para Diseñar Estrategias. Documento de Trabajo*, Pontifica Universidad Católica de Chile, Santiago.

Denis, J-L., Lamothe, L. and Langley, A. (2001), "The dynamic of collective leadership and strategic change in pluralistic organizations", *Academy of Management Journal*, Vol. 44 No. 94, pp. 809-37.

Eisenhardt, K. and Zbaracki, M. (1992), "Strategic decision making", *Strategic Management Journal*, Vol. 13 No. 1, pp. 17-37.

Farjoun, M. (2008), "Strategy making, novelty and analogical reasoning", *Strategic Management Journal*, Vol. 29 No. 11, pp. 1001-16.

Fiol, C.M. and Huff, A.S. (1992), "Maps for managers: where are we? Where do we go from here?", *Journal of Management Studies*, Vol. 29 No. 3, pp. 267-85.

Floyd, S.W. and Lane, P.J. (2000), "Strategizing throughout the organization: managing role conflict in strategic renewal", *Academy of Management Review*, Vol. 25 No. 1, pp. 154-77.

Fredrickson, J.W. (1983), "Strategic process research: questions and recommendations", *Academy of Management Review*, Vol. 8 No. 4, pp. 565-75.

Fredrickson, J.W. and Iaquinto, A.L. (1989), "Inertia and creeping rationality in strategic decision processes", *Academy of Management Journal*, Vol. 32 No. 3, pp. 516-42.

Garvin, D.A. (1998), "The processes of organization and management", *Sloan Management Review*, Vol. 39 No. 4, pp. 33-50.

Gavetti, G. and Levinthal, D. (2000), "Looking forward and looking backward: cognitive and experiential search", *Administrative Science Quarterly*, Vol. 45, pp. 113-37.

Gavetti, G. and Rivkin, J. (2005), "How strategists really think: tapping the power of analogy", *Harvard Business Review*, April, pp. 54-63.

Gavetti, G. and Rivkin, J. (2006), "On the origin of strategy: action and cognition over time", *HBS Working Papers*.

Gavetti, G., Levinthal, D. and Rivkin, J. (2005), "Strategy making in novel and complex worlds: the power of analogy", *Strategic Management Journal*, Vol. 26, pp. 691-712.

Gersick, C.J.G. (1991), "Revolutionary change theories: a multilevel exploration of punctuated equilibrium paradigm", *Academy of Management Review*, Vol. 16 No. 1, pp. 10-36.

Gibson, K. (2008), "Analogy in scientific argumentation", *Technical Communication Quarterly*, Vol. 17 No. 2, pp. 202-19.

Ghemawat, P. (1991), *Commitment: The Dynamic of Strategy*, The Free Press, New York, NY.

Ghemawat, P. (2001), "Distance still matters: the hard reality of global expansion", *Harvard Business Review*, September, pp. 137-47.

Greenwood, R. and Hinings, C.R. (1993), "Understanding strategic change: the contribution of archetypes", *Academy of Management Journal*, Vol. 36 No. 5, pp. 1052-81.

Hage, J.T. (1999), "Organizational innovation and organizational change", *Annual Review of Sociology*, Vol. 25, pp. 597-622.

Hambrick, D.C. and Mason, P.A. (1984), "Upper echelons: the organization as a reflection of its top managers", *Academy of Management Review*, Vol. 9 No. 2, pp. 193-206.

Harzing, A.-W. (2000), "Cross-national industrial mail surveys: why do response rates differ between countries?", *Industrial Marketing Management*, Vol. 29, pp. 243-54.

Hart, S.L. (1992), "An integrative framework for strategy-making processes", *Academy of Management Review*, Vol. 17 No. 2, pp. 327-51.

Henderson, R. and Clark, K. (1990), "Architectural innovation: the reconfiguration of existing product technologies and the failure of established firms", *Administrative Science Quarterly*, Vol. 35 No. 1, pp. 9-30.

Hitt, M.A. and Tyler, B.B. (1991), "Strategic decision models: integrating different perspective", *Strategic Management Journal*, Vol. 12, pp. 327-51.

Huff, J.O., Huff, A.S. and Thomas, H. (1992), "Strategic renewal and the interaction of cumulative stress and inertia", *Strategic Management Journal*, Vol. 13, pp. 55-75.

Keeley, M. (1980), "Organizational analogy: a comparison of organismic and social contract models", *Administrative Science Quarterly*, Vol. 25, pp. 337-61.

Khanna, T. and Palepu, K. (2006), "Emerging giants: building world class companies from emerging markets", *Harvard Business Review*, November, pp. 50-60.

March, J.G. and Simon, H.A. (1958), *Organizations*, Wiley, New York, NY.

Mintzberg, H. (1978), "Patterns in strategy formation", *Management Science*, Vol. 24 No. 9, pp. 934-48.

Mintzberg, H. and Lampel, R. (1999), "Reflecting on the strategy process", *Sloan Management Review*, Vol. 40 No. 3, pp. 21-30.

Morgan, G. (1980), "Paradigms, metaphors, and puzzle-solving in organization theory", *Administrative Science Quarterly*, Vol. 25, pp. 605-22.

Nunnaly, J. and Bernstein, I. (1994), *Psychometric Theory*, 3rd ed., McGraw-Hill, New York, NY.

Papadakis, V.M., Lioukas, S. and Chambers, D. (1998), "Strategic decision-making processes: the role of management and context", *Strategic Management Journal*, Vol. 19, pp. 115-47.

Penrose, E.T. (1952), "Biological analogies in the theory of the firm", *American Economic Review*, Vol. 42, pp. 804-19.

Peterson, M.J. (1997), "The use of analogies in developing outer space law", *International Organization*, Vol. 51 No. 2, pp. 245-74.

Pinder, C.C. and Bourgeois, W.V. (1982), "Controlling tropes in administrative science", *Administrative Science Quarterly*, Vol. 27, pp. 641-53.

Prahalad, C.K. and Doz, Y. (1987), *The Multinational Mission: Balancing Global Demands and Global Vision*, Free Press, New York, NY.

Rajagopalan, N. and Spreitzer, G.M. (1996), "Toward a theory of strategic change: a multi-lens perspective and integrative framework", *Academy of Management Review*, Vol. 22 No. 1, pp. 48-79.

Ricart, J.E., Enright, M.J., Ghemawat, P., Hart, S.L. and Khanna, T. (2004), "New frontiers in international strategy", *Journal of International Business Studies*, Vol. 35 No. 3, pp. 175-200.

Rumanelli, E. and Tushman, M.L. (1986), "Inertia, environments, and strategic choice: a quasi-experimental design for comparative-longitudinal research", *Management Science*, Vol. 32, pp. 608-21.

Sullivan, D. (1994), "Measuring the degree of internationalization of a firm", *Journal of International Business Studies*, Vol. 25 No. 2, pp. 325-42.

Stapel, D.A. and Spears, R. (1996), "Guilty by disassociation (and innocent by association): the impact of relevant and irrelevant analogies on political judgment", *Political Behavior*, Vol. 18 No. 3, pp. 289-309.

Tripsas, M. and Gavetti, G. (2000), "Capabilities, cognition, and inertia: evidence from digital imaging", *Strategic Management Journal*, Vol. 21, pp. 1147-61.

Tsoukas, H. (1993), "Analogical reasoning and knowledge generation in organization theory", *Organization Studies*, Vol. 14 No. 3, pp. 323-46.

Tynan, C. (1997), "A review of the marriage analogy in relationship marketing", *Journal of Marketing Management*, Vol. 13, pp. 695-703.

Weick, K.E. and Quinn, R.E. (1999), "Organizational change and development", *Annual Review of Psychology*, Vol. 50, pp. 361-86.

Zajac, E.J., Kraatz, M.S. and Bresser, R.K. (2000), "Modeling the dynamics of strategic fit: a normative approach to strategic change", *Strategic Management Journal*, Vol. 21, pp. 429-53.

Appendix

The following questions that belong to the survey applied were used to calculate the distance of the analogies:

1. **How do you describe your business?**
   a) Part of a multinational corporation (MNC) with headquarters in a developed country (A1)
   b) Part of a multinational corporation (MNC) with headquarters in Chile (A2)
   c) Part of either a local firm or local holding (A3)

2. **While you were formulating the strategy of the firm, the industry of the external business model used as an analogy came from:**

	Current Business Model (The strategy model is currently used)	Past Business Model (The strategy model was used in the past)
A firm of the same industry		
A firm of a different industry		

3. **The external model used by the upper managers came from a firm and business located in:**

	Headquarter Location of the other firm
USA, Europe or other developed country	
Chile	
Other country from Latinoamérica	
Other undeveloped country	

Figure A1.

.

Corresponding author
Fernando Fuentes-Henríquez can be contacted at: ferfuentes@udec.cl