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# STUDY OF STRATEGIC CHANGES IN COMPANIES OF THE CONSTRUCTION SECTOR: AN APLICATION OF THE TUSHMAN AND ROMANELLI MODEL

# UM ESTUDO DE MUDANÇAS ESTRATÉGICAS EM EMPRESAS DO SETOR DE CONSTRUÇÃO CIVIL: UMA APLICAÇÃO DO MODELO DE TUSHMAN E ROMANELLI

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# STUDY OF STRATEGIC CHANGES IN COMPANIES OF THE CONSTRUCTION SECTOR: AN APLICATION OF THE TUSHMAN AND ROMANELLI MODEL

## ABSTRACT

Organizations are present in environments characterized by intense competition and turbulence. These environments make the adaptation process of the organizations more complex, and their managers need to conduct their business in consonance with the environmental changes considered important by them. The aim of this research is to describe strategic changes according to the model proposed by Tushman and Romanelli (1985); it is possible to verify that most of the time, the process was incremental, interspersed with revolutionary changes. A multi-case study was conducted considering the history of the companies, and on the basis of this study, critical events were defined and then strategic periods were characterized according to the methodology devised by Miles and Huberman (1984) and Mintzberg and McHugh (1985). This research offers a significant contribution to studies that try to explain how companies formulate their strategies.

*Keywords:* Evolutionary Changes; Revolutionary Changes; Strategic Adaptation; Construction Sector.

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#### **RESUMO**

As organizações estão inseridas em ambientes caracterizados pela hiper-competição e turbulência. Estes ambientes fazem com que os processos de adaptação sejam mais complexos e que os gerentes precisem conduzir seus negócios consoantes a importância das mudanças ambientais. O Objetivo desta pesquisa foi descrever as mudanças estratégicas de acordo com o modelo de Tushman e Romanelli (1985), onde pôde se observar que o processo foi incremental intercambiado por mudanças revolucionárias. Realizou-se um estudo multicaso considerando a história das empresas, a partir do qual se definiram os eventos críticos e, a partir deles, caracterizou seus períodos estratégicos através das metodologias de Miles e Huberman (1984) e Mintzberg e McHugh (1985). A pesquisa contribui de forma significante para os estudos que buscam explicar como as empresas formulam suas estratégias.

**Palavras-chave:** Mudanças Evolucionárias; Mudanças Revolucionárias; Adaptação Estratégica; Setor da Construção.

#### **1 INTRODUCTION**

The Civil Construction Industry - Building Sector (CCIBS), as several other industrial sectors, has been experiencing changes in the last decades. The environment has been characterized by uncertainty and intense competition. As a result, the managerial perspective of the organizations in this industrial sector has been in constant adaptation to new circumstances, in order to follow the transformations taking place in the environment, that is, implementing actions that are adequate to the new realities. This leads to deep changes in the strategies of these organizations, seen as a requirement for the organizational survival.

Ashridge (as cited in Fisher, 1986) explains that, owing to the change in the construction industry environment, the constructors' capacity to work in response to the variation in the demand, providing continuity of services, was decisive for their survival.

However, entrepreneurs' adaptation attempts are usually made in an intuitive and quite randomly manner, without the support of studies to help identify patterns of behavior or variable influential changes, which could offer subsidies and facilitate executives' decision-making process.

Such problems hinder entrepreneurs that try to manage their businesses in consonance with the environmental changes considered important by them. Adaptation to the environment is achieved by means of strategic changes in the company. Aiming to understand the adaptation process of the two organizations, the following research question was defined: How did the strategic adaptation process of the two organizations from the Civil Construction Industry – Building Sector occur, from 1980 to 1997, in the light of the Tushman and Romanelli model?

To answer this question, the analysis of the strategic changes of both companies was defined as the objective of this research. First, changes were identified and the strategic periods that characterize the process of organizational strategic adaptation were defined. After that, the strategic adaptation process of both organizations was analyzed using the Tushman and Romanelli model.

# 2 STRATEGIC CHANGE ACCORDING TO THE TUSHMAN AND ROMANELLI MODEL

Tushman and Romanelli (1985) developed the punctuated equilibrium model to describe organizational change through time. Organizational evolution is described as periods of incremental change punctuated by periods of discontinuous change. They affirm that organizations' progress through convergent periods is punctuated by reorientations that determine limits for convergent times.

Revista Ibero-Americana de Estratégia - RIAE, São Paulo, v. 8, n. 2, p. 161-182, jul./dez. 2009.

According to the model, the convergence stage is a long period of time when incremental change and adaptation occur. Reorientations are relatively short periods of revolutionary changes (Fornaciari, Lamont, Mason, & Hoffman, 1993; Gersick, 1991; Romanelli & Tushman, 1994).

Convergence periods constitute continuous processes in which the role of the main executive's leadership is to reinforce the effective strategy, the essential values and the mission of the company, while observing the opportunities and threats of the environment (Tushman, Newman, & Romanelli, 1986).

The two types of convergence changes are: fine-tuning of effective strategies and incremental adjustments to the environmental. This involves **gradual changes that** are easy to implement and there is time for the organization to concentrate on the search for effectiveness.

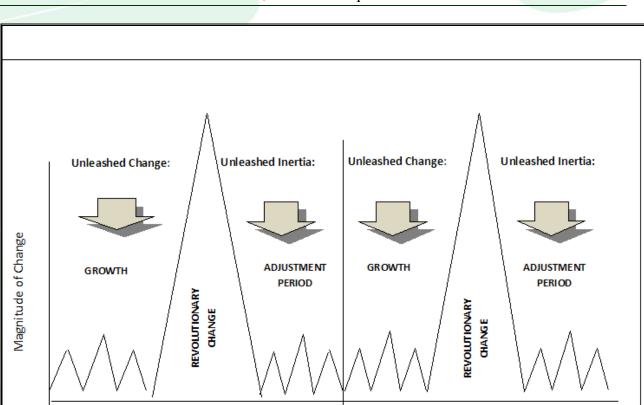
As organizations become more successful, they increase internal inertial forces and the pattern is reinforced. That is, the longer the convergence period, the larger the momentum of conformity to the status quo.

Long convergence periods occur when the strategy is adapted to the external and internal conditions of the organization. If it faces a strong threat, such as a major alteration in the environment and an inappropriate strategy, the forces of inertia act to prevent the adoption of changes. The longer the convergence period (success period), the longer the period between environmental change and divergence (reorientation) in the organization (Tushman et al., 1986).

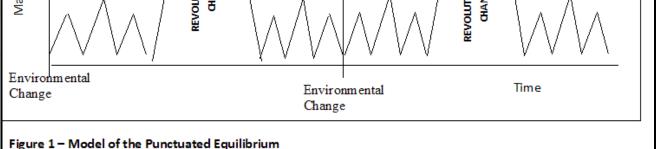
Reorientation periods are characterized by revolutionary changes that take the form of simultaneous and defined changes in the strategic dimensions (Fornaciari et al., 1993; Gersick, 1991). Typically, these changes occur not only in strategy, but also in the structure, in the people and in the processes, so much that the organization is remodelled.

This type of change is used in response to discontinuity in the environment, such as regulation or an increase of competition pressures. Frequently, inertia foreacts to prevent the implementation of new strategies, even considering that the current strategy provokes a decline in performance. At this time, the reorientation periods are activated. Figure 1 shows the model of the punctuated equilibrium in organizational evolution proposed by Tushman and Romanelli (1985).

Revista Ibero-Americana de Estratégia - RIAE, São Paulo, v. 8, n. 2, p. 161-182, jul./dez. 2009.



Carlos Ricardo Rossetto, Adriana Marques Rossetto & Carlos Eduardo Carvalho



First, an environmental change occurs. In response to this change, the organization acts experimentally because stability and certainty are reduced by that change. This leads to a growth period for revolutionary change. At the same time, inertia forces build up to maintain the status quo.

However, during this period, the forces of change begin to accumulate and they unleash a revolutionary change. With this, a new dominant strategy appears with the coming of a new convergence period. Incremental adjustments and fine tuning characterize the change in the strategy, at the same period of time. As stability is restored, inertia forces begin to act again, determining the stage for the next change.

The model that Tushman and Romanelli (1985) outlined forms the conceptual base that will be used to describe the process of strategic adaptation of the companies studied. This structure is necessary to identify the conditions in the context of change and to understand how they interacted to inhibit or create them.

Greenwood and Hinings (1988) have treated the subject of macro organizational change with the concept of tracks. A track is a sequence that involves the alteration of elements in the structure of an effective interpretative scheme, the appearance of new interpretative schemes and

Revista Ibero-Americana de Estratégia - RIAE, São Paulo, v. 8, n. 2, p. 161-182, jul./dez. 2009.

their rearrangement with appropriate elements of the structure. This should be transformational reorientation; movements that start a transformation process followed by a period of stability where incremental changes occur.

Mintzberg (1973) characterizes incremental or adaptive change as a series of small steps where new strategies are gradually formed.

Contrarily, revolutionary change is characterized as dramatic steps forward, usually due to environmental uncertainty (Mintzberg, 1978). Miller and Friesen (1980) approach revolutionary change as a drastic change of a great number of variables in strategy and structure. Huy and Mintzberg (2003) refer to revolutionary change as dramatic change, and assert that is the leader of company that command it start in crisis or great opportunity times.

March (1991) argues that a central issue of adaptive process is the dynamics between exploitation and exploration. Lewin, Long and Carrol (1999) explain exploitation as concerned with refinement, efficiency and improvement of existing capabilities, and exploration as complex search for innovation, experimentation, and risk taking.

Explaining the relationship between the punctuated equilibrium model and the exploration and exploitation model, Gupta, Smith and Shalley (2006) argue that punctuated equilibrium refers to a cycle where exploration and exploitation are pursued at different times, one after the other.

Therefore, regarding the magnitude of the change process, it can be argued that strategic change can have an incremental configuration as much as a revolutionary one.

#### **3 METHODOLOGY**

The qualitative (Lüdke & André, 1986; Triviños, 1992) multi case study (Yin, 1984) describes the strategic changes that took place from 1980 to 1997, according to the perception of the dominant coalition, representing a group of decision makers who have a big influence on the system (Miles & Snow, 1978). Van Mannen (1979) affirms that the qualitative approach does not have one specific meaning in social sciences. It is better described as an umbrella covering interpretative techniques that are used to describe, decode, translate and give meaning to the terms of certain phenomena that naturally occur in the social world.

Mintzberg (1979) describes his journey through the qualitative approach, pointing out seven basic themes that form the base for this study. These seven themes confirm a lot of what has been said about the aspects that should be found in a qualitative study: (1) it has to be as purely

descriptive as the skills of the researcher allow it to be; (2) it depends on simple methodologies; (3) it has to be as inductive as possible; (4) it has to be systematic in nature; (5) it has to be measured in real organizational terms; (6) it has to assure that systematic data are supported by data obtained in the interviews and; (7) it has to integrate several organizational elements inside the configurations of ideal or pure types.

To obtain theoretical progress in organizational changes studies, Pettigrew, Woodman and Cameron (2001) recommend the examination of multiple contexts, the inclusion of time, history, process and action, the study of customization, sequencing, pace, and episodic versus continuous change processes, among other issues.

#### **3.1 DATA AND ANALYSIS**

In the qualitative study data collection and analysis were carried out in dynamic interaction, with retro feeding and constant reformulation, so that the collection of data instantly stopped for a new analysis, and this became a vehicle for new search of information right afterwards (Triviños, 1992).

The data used came from several sources and was obtained in a systematic manner, and it can be described as follows:

**Primary data:** obtained in field study through semi-structured interviews (Minayo, 1993), which made it possible for the interviewee to talk about the proposed theme, without answers or conditions being prefixed by the researcher;

Secondary data: obtained in newspapers, specialized magazines of the sector, general business magazines, journals, books, dissertations and publications from the organization themselves.

The universe of this study was the Civil Construction Industry – Building Sector of Florianópolis, Brazil, and the sample consisted of two companies of this industrial sector, defined as intentional sample (Selltiz et al., 1987). Although the intentional choice can lead to bias, Minayo (1993) affirms that this type of sample privileges the social subjects that have the attributes that the researcher wants to study. The research was carried out with interviewees with dominant coalition from both firms.

As it was an *ex-post-facto* study, data collection was carried out with those participants of the dominant coalition phenomenon, as Child (1972) and Child and Smith (1987) call it, by means

Revista Ibero-Americana de Estratégia - RIAE, São Paulo, v. 8, n. 2, p. 161-182, jul./dez. 2009.

of open interviews, with a maximum duration of one hour, which were recorded. This coalition has great importance, because strategies and organizational efficacy are dependent on the values and cognitive bases of the most influential actors in the organization, the dominant coalition (Hambrick & Mason, 1984).

To define who the interviewees would be, the top executives of the companies were asked to identify the main people who had participated in the process and could aid in the investigation. The sample consisted of the main executives of the organizations, owners, directors, and senior engineers, a total of 8 interviewees. The interviews allowed the researcher to learn about the opinions of the informants that had played a part at the different stages of the strategic change process, so as to build a solid general picture.

Using the data collected, the researchers tried to identify themes and relationships, building interpretations and generating new subjects and/or improving the previous ones. This made them eventually look for new data, complementary or more specific, that helped them test their interpretations, in a process of fine tuning that continued for the final analysis. This provoked the need for new interviews so that researchers would be able to validate data reported by the interviewees.

The qualitative study employs such techniques as semi-structured interviews, and does not establish a clear separation between collection and interpretation of the data. This can be better observed in phenomenological studies, where the actor plays a prominent role. The subjective dimension of this focus favors flexibility in the data analysis, permitting the constant flux of new information to be grouped and interpreted, so as to identify new hypotheses and direct a new search of data (Triviños, 1992).

Miles and Huberman (1984) offer a rich material to guide the registration, analysis and presentation tasks of qualitative data. That material suggests procedures to be adopted in the analysis, during the collection of data up and up to the final point, and it includes specific suggestions for studies developed in a single context and for those that compare two or more contexts.

Other works in organizational studies (Bourgeois & Eisenhardt, 1988; Mintzberg, 1979; Mintzberg & McHugh, 1985) have attracted attention, regarding collection techniques and analysis of suitable data in qualitative studies.

Although they are all applicable, for the analysis of the data collected in the present study procedures adopted were those of the direct research approach, as proposed by Mintzberg (1979).

Revista Ibero-Americana de Estratégia - RIAE, São Paulo, v. 8, n. 2, p. 161-182, jul./dez. 2009.

#### Carlos Ricardo Rossetto, Adriana Marques Rossetto & Carlos Eduardo Carvalho

The methodology using direct research approach requires a longitudinal approach, with the researcher rebuilding the fact after it has happened, making a historical reconstruction of the phenomenon. The methodology used by Mintzberg and McHugh (1985) is divided into four steps: (1) collection of secondary data, giving priority to the search of information in files, annual reports etc., limiting researchers' participation, with the use of interviews, just to the points that are not well defined; (2) inference of strategies and periods, where the data are arranged in chronological order, when possible described in a common time scale, and analyzed to infer patterns or consistencies through time; (3) analysis of each period in step (2). At this time the study allows the collection of secondary data to support the interviews, trying to find, in the key people, an explanation for the main changes in the phenomenon studied; and (4) theoretical analysis. The researcher tries to interpret each historical period, as well as the whole process, in conceptual terms.

The methodology used in this study involved the following tasks:

- 1. Collection of data from secondary sources, followed by interviews. At this stage emphasis was given to the constant comparison of the data, with the aim of identifying categories.
- 2. Construction of a list of events based on primary and secondary data, emphasizing the critical events. The method of the list of events proposed by Miles and Huberman (1984) allows researches to have a general view of the process of strategic change. Similar methods are used by Child and Smith (1987), Mintzberg and McHugh (1985) and Pettigrew (1987),
- 3. Definition of periods and strategies based on the interpretation of those researched and of the researcher.
- 4. Theoretical analysis of each period.
- 5. Construction of the case according to the Tushman and Romanelli model.

# 4 THE STUDY OF THE PROCESS OF STRATEGIC ADAPTATION ACCORDING TO THE TUSHMAN AND ROMANELLI MODEL

In the next sections will be presented both cases analyzed under Tushman and Romanelli Model, the Almeida Pedroso Group and the Magno Martins Group. Will be presented the critical events, the strategic periods, and the diagram of each case.

## 4.1THE STUDY OF THE STRATEGIC CHANGES IN THE ALMEIDA PEDROSO GROUP

To explain this adaptation process, the strategic changes that were identified and the most influential ones adopted by the organization are shown (Figure 2). Starting from this, the strategic periods were defined (Figure 3).

Figure 2–Strategic Changes in the Process of Strategic Adaptation of the Almeida Pedroso Group.

	CRITICAL EVENT	YEAR
1.	Appearance of the Almeida Pedroso Group	1979
2.	The search for a new market	1980
3.	First organizational crisis	1983
4.	Entrance in the public works sector	1985
5.	Return to the real estate sector	1987
6.	Exit from the public works sector	1991
7.	Implemention of corporate strategic planning	1992
8.	Release of Plan CASA (HOUSE)	1994
9.	Setting up of Almeida Pedroso Constructive Components Ltd	1995
10.	Beginning of organizational restructuring	1996

Source: Developed by the author.

As seen in Figure 2, between 1979 and 1997, four strategic periods of the Almeida Pedroso Group were defined (Figure 3). These periods, characterized by the number of decisions made by the company that established a pattern of strategic behavior, were identified and are used as a theoretical reference base that guides this research.

	DESCRIPTION	YEAR		
	1. Entrance in the Civil Construction sector and Search for New Market	1979-1984		
	2. Strategic Reorientation	1985-1991		
	3. Planned Change	1992-1995		
/	4. Corporate Reorganization	1996-1997		

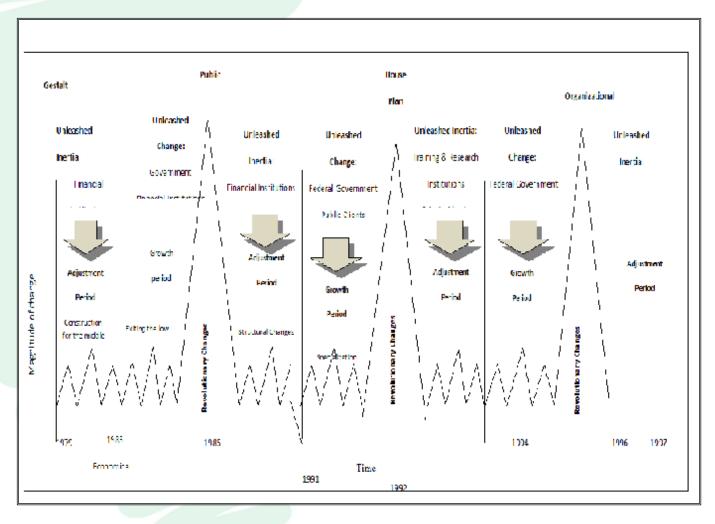
Figure 3 - Strategic Periods in the Process of Strategic Adaptation of the Almeida Pedroso Group.

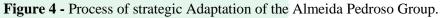
Source: Developed by the author.

### 4.1.1 The Process of Strategic Adaptation of the Almeida Pedroso Group

In the process of strategic adaptation of the Almeida Pedroso Group, incremental changes occurred, together with some revolutionary changes. Using Tushman and Romanelli's punctuated equilibrium model (1985) (Figure 4), this process will be explained i.e. how these changes occurred in each strategic period studied. Later, the main characteristics of this process will be analyzed.

Revista Ibero-Americana de Estratégia - RIAE, São Paulo, v. 8, n. 2, p. 161-182, jul./dez. 2009.





Source: Adapted from the Tushman and Romanelli (1985).

#### 4.1.1.1 Strategic Period 1

At the beginning of this period, the dominant strategy was to act in the niche of housing for lower middle class, in the incorporation system, with financing from SFH, the Brazilian housing financing system. In the course of time, changes occurred in the objective environment, until the deep crisis in 1983. The company responded in an incremental way, because stability and certainty had been the key note until the year of 1982. The unleashing factors of the organizational inertia were: private clients, financial institutions and competitive competition. The year of 1983 can be characterized as the beginning of the growth period, when the unleashing change factors appeared. These are, in special, the government and the financial institutions. The low performance of the organization can be added to these factors. And then came the period in which a new dominant strategy took place.

#### 4.1.1.2 Strategic Period 2

At the beginning of this period the new dominant strategy was to work in public works. From this point onwards, an adjustment period begins with the new dominant strategy, and with the appearance of the factors that unleashed inertia. They are the public clients and the good profitability from the segment of public works. Moreover, the private clients also contributed towards the stability of the dominant strategy. However, changes occurred in the objective environment: José Sarney took office, in 1985; The Cruzado Plan was launched, in 1986; the economic situation was very difficult from 1987 to 1990; and there was the crisis of 1991. Because of this, the company responded in an incremental manner, with public works and some residential buildings, when the resources allowed. 1990 saw the beginning of what Tushman and Romanelli (1985) call the growth period, when the elements for unleashed change appeared. These were the federal government, the public clients and the new abilities of the company leader. The decline of the organizational performance, which was critical in 1991, can also be listed as one of them. This led to a period in which a new dominant strategy took place.

#### 4.1.1.3 Strategic Period 3

At the beginning of this period, the new dominant strategy was to act in the housing sector for low-income groups, in the incorporation system, with self-financing. After this was configured, an adjustment period began, with the appearance of the unleashed inertia factors. They were the private clients, suppliers and the teaching and research institutions. Again, the origin of the crisis lay in the instability of the objective environment of the company, owing to the continuation of the crisis in 1992, and on through the reaction of the economy and the CCI, in 1993, culminating in the shortage of financing and the popularization of the *Real* Plan in 1994. This plan was the main factor unleashing a new process of organizational transformation. In this period of growth, the company searched for alternatives to reach a new balance.

#### 4.1.1.4 Strategic Period 4

At the beginning of this period, the embryo of a new dominant strategy appears, at the start of the organizational restructuring. This process was carried out throughout 1996 and 1997, when the factors that unleashed inertia were fiercer competition and private clients.

Revista Ibero-Americana de Estratégia - RIAE, São Paulo, v. 8, n. 2, p. 161-182, jul./dez. 2009.

#### 4.2 THE STUDY OF THE STRATEGIC CHANGES OF THE MAGNO MARTINS GROUP

In the period covered by this study - 1982-1996, the Magno Martins Group was making organizational adaptations using several strategies. To explain this adaptation process, they outlined the strategic changes adopted by the organization (Figure 5). Based on these changes, the strategic periods were defined (Figure 6), according to the decisions made by the company that established a pattern of strategic behavior for each period.

Figure 5–Strategic Changes of the Process of Strategic Adaptation of the Magno Martins Group.

CRITICAL EVENTS	YEAR
1.Setting up of Emecon Engineering Ltd.	1982
2. Entrance in the niche of commercial buildings	1987
3. Entrance in the niche of public works	1987
4. Beginning of works in the <i>closed condominium</i> system	1988
5. Approval of a new master plan for Florianópolis	1988
6. Entrance in the beach construction niche	1989
7. Adoption of self-financing	1991
8. Encol's arrival in Florianópolis	1992
9. Entrance in the hotel branch	1993
10. Backward Integration Steps	1994
11. Reformulation of the productive processes	1995

Source: Adapted from Martignago (1998).

DESCRIPTION	PERIOD
1. Entrance and consolidation in the market	1982-1986
2. Search for new markets	1987-1991
3. Organizational Restructuring	1992-1994
4. Search for competitiveness	1995- 1996

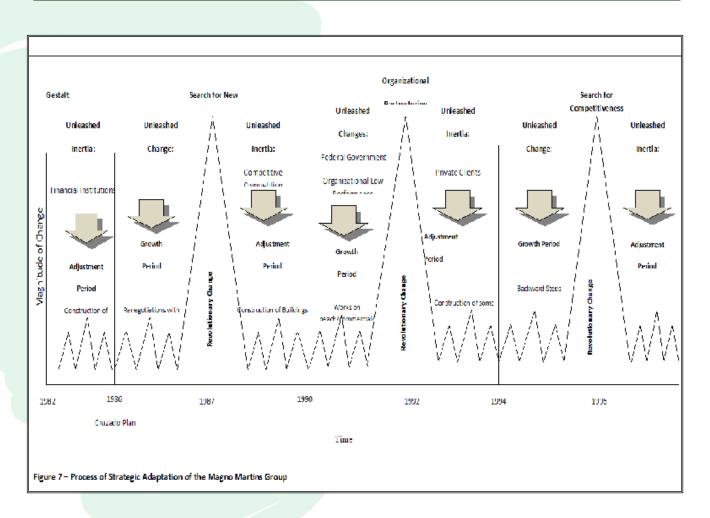
Figure 6 - Strategic Periods of the Process of Strategic Adaptation of the Magno Martins Group.

Source: Adapted from Martignago (1998).

### 4.2.1 The Process of Strategic Adaptation of the Magno Martins Group

In the process of strategic adaptation of the Magno Martins Group, incremental changes took place, combined with some revolutionary changes. For better understanding of this process, Tushman and Romanelli's punctuated equilibrium model (1985) will be used to explain it (Figure 7), showing how changes occurred in each strategic period studied. Later, the main characteristics of this process will be analyzed.

#### Study of Strategic Changes in Companies of the Construction Sector: An Aplication of the Tushman and Romanelli Model



#### **STRATEGIC PERIOD 1**

At the beginning of this period, the dominant strategy – referred to as gestalt strategy - was to act in the niche of residential buildings for the middle class, in the area around the UFSC (Federal University of Santa Catarina) campus, in the incorporation system, with SFH financing. The factors that unleashed inertia were: private clients, Pesqueira Pioneira da Costa Ltda – PPCL (affiliated company), financial institutions, fierce competition and the municipal government. In the course of time, changes in the objective environment appeared, from the time the company was founded in 1982, and on through the recession of the economy in 1984, until the deep crisis in 1986. In this year, what the authors call **the growth period** began to occur, where the unleashed changes appeared: the federal government, the private clients and the suppliers. The low performance of the organization can also be included in this group. And then began a period where a new dominant strategy made its appearance: the search for new markets.

Revista Ibero-Americana de Estratégia - RIAE, São Paulo, v. 8, n. 2, p. 161-182, jul./dez. 2009.

#### 176

## **STRATEGIC PERIOD 2**

At the beginning of this period, the dominant strategy was not only to act in the core business, but also in the segment of condominiums at the beach, commercial buildings with SFH financing and public works. Unleashed inertia factors: private clients, fierce competition and financial institutions. A change in the objective environment occurred at this time. Financing was gradually reduced in 1988; and the crisis set in with the Collor Plan, in 1990. What the authors call the growth period started in that same year, when the factors for unleashed change appeared: the federal government, the state and municipal public clients and the financial institutions. The low performance of the organization, which was due to inefficiency in the core business area, can be added to this list. And then began the period when a new dominant strategy came into effect: Organizational Restructuring.

#### **STRATEGIC PERIOD 3**

At the beginning of this period, the dominant strategy was to act in its new core business: residential buildings in the vicinity of the UFSC (Federal University of Santa Catarina) campus, in the downtown area and at the beach, in the incorporation system. Private clients, fierce competition and suppliers acted as unleashed inertia factors. But modifications in the environment began to occur. Continuous financing started in 1990. That improved the situation of CCIBS a little in 1993, but the *Real* Plan in 1994 and the search of the companies for competitiveness and productivity to meet the market demands in 1995 altered the rules of the market a lot, generating a growth period, when the unleashed change occurred: the federal government and the private clients. And then there was the period when a new dominant strategy took effect: the search for competitiveness.

#### **STRATEGIC PERIOD 4**

At the beginning of this period, the dominant strategy was the restructuring of the new core business productive processes. Unleashed inertia took place: private clients and fierce competition. The company is now proceeding with its operational restructuring.

#### **5 FINAL CONSIDERATIONS**

This research intended to analyze the strategic changes in two companies from the Civil Construction Industry – Building Sector. First, the changes were identified and the strategic periods which characterize the process of organizational strategic adaptation were defined. After these two initial steps, the processes of strategic adaptation were analyzed according to the Tushman and Romanelli model.

In this research, the organizational strategic adaptation of both companies studied confirmed Tushman and Romanelli's (1985) claims: the process of organizational transformation is a phenomenon that is characterized by periods of revolutionary changes interspersed with periods of incremental changes. New strategies were continuously spreading, in a revolutionary manner, during short periods of divergence, interspersed with incremental changes, during long periods of convergence (Miller & Friesen, 1980).

For both companies the revolutionary changes took place three times, in short periods of time. The first happened between 1985 and 1987, owing to the crisis that hit the CCI and the consequences of the *Cruzado* Plan. The second took place in 1992, due to the implementation of the Collor Plan. The last was between 1995 and 1996, right after the *Real* Plan implementation. The periods between these revolutionary changes were periods in which the incremental strategic changes were predominant.

The revolutionary strategic changes were characterized as corporate strategies of concentric diversification, market development and business strategies with modifications in the productive processes improvement.

The Economic Plans announced in 1986, 1990 and 1994 were relevant factors in the objective environment for the companies to experience revolutionary changes. The revolutionary change processes were preceded by long periods of recognition called by Tushman and Romanelli (1985) development/foment periods.

There were two main evolutionary strategic changes: corporate and businesswise. Corporate: market development, forward and backward vertical and concentric development; businesswise: self-financing and structural changes.

Strategic adaptation is a two-way process in which the organization, at specific moments, influences the environment, and at others, is influenced by this environment. Determinism, as well as environmental voluntarism, explain the strategic adaptation process.

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