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SUBJECT AREA: ORGANIZATIONAL STRATEGY AND BEHAVIOR

## Brazilian Multinational Companies' Subsidiaries' Initiative: a typology proposal

*Iniciativa das Subsidiárias de Multinacionais Brasileiras: proposta  
de uma tipologia*

*Iniciativa de las Subsidiarias de Multinacionales Brasileñas: propuesta  
de una tipología*

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### ABSTRACT

The aim of this study was to investigate whether culture, knowledge transfer and initiative allow for the configuration of homogeneous groups of Brazilian multinational companies' subsidiaries – and, as a result, to propose a typology. Thus, based on a previously adapted Birkinshaw model (1999) of subsidiary initiatives tested by structural equation modeling in an earlier phase of research, it was possible to use transfer of knowledge, culture and initiative constructs scores from each sample unit to apply the clusters technique. As a result, three clusters were found – which, based on the Birkinshaw typology (1995) for classifying

subsidiaries according to initiative, were defined as: (1) Reconfiguration initiative and (3) Local market initiative. Since the second group of subsidiaries could not be classified according to Birkinshaw's typology, it was called (2) Incipient initiative. Subsidiaries of the Reconfiguration initiative cluster present mainly internal initiatives, although they do identify local opportunities for applying and expanding their resources; whilst subsidiaries of Local market initiative reveal that both knowledge transfer in both directions (headquarters versus units) and culture are relevant to their initiatives, mainly external ones. Finally, subsidiaries from the Incipient Initiative cluster are units that tend to be similar

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in culture to Brazil, but knowledge transfer is low, indicating that international units do not know enough about the company's business to be able to propose initiatives.

**Keywords:** Brazilian multinational companies. Subsidiary. Initiative. Culture. Knowledge transfer.

## RESUMO

O objetivo deste estudo foi investigar se a cultura, a transferência de conhecimento e a iniciativa permitem a configuração de grupos homogêneos de subsidiárias de multinacionais brasileiras e, decorrente disto, propor uma tipologia. Para tanto, a partir de um modelo previamente adaptado de Birkinshaw (1999) e testado por meio da técnica de modelagem de equações estruturais, em uma etapa anterior da pesquisa sobre iniciativa das subsidiárias, foi possível utilizar os escores dos constructos transferência de conhecimento, cultura e iniciativa das unidades da amostra para aplicar a técnica de conglomerados. Como resultado, obtiveram-se três conglomerados que, de acordo com a tipologia desenvolvida por Birkinshaw (1995) para classificar as subsidiárias segundo a iniciativa, dois foram classificados em: (1) Iniciativa de reconfiguração e (3) Iniciativa no mercado local. Visto que as subsidiárias do conglomerado (2) não puderam ser classificadas na tipologia referenciada, foi denominado de iniciativa incipiente. As subsidiárias do conglomerado iniciativa de reconfiguração apresentam predominantemente a iniciativa interna, apesar de identificarem oportunidades locais de aplicação e ampliação dos seus recursos; em contrapartida, as subsidiárias do conglomerado iniciativa no mercado local indicam que tanto a transferência de conhecimento em ambos os sentidos (matriz *versus* unidades), quanto a cultura são relevantes para as iniciativas, destacando-se as iniciativas externas. Por fim, as subsidiárias do conglomerado iniciativa incipiente são unidades que tendem a apresentar culturas similares a do Brasil, mas a transferência de conhecimento é baixa, indicando

que as unidades internacionais não dominam bem o negócio da corporação ao ponto de poderem propor iniciativas.

**Palavras-chave:** Multinacional brasileira. Subsidiária. Iniciativa. Cultura. Transferência de conhecimento.

## RESUMEN

El objetivo del estudio fue investigar si la cultura, transferencia de conocimiento e iniciativa, permiten la configuración de grupos homogéneos de subsidiarias de multinacionales brasileñas y, consecuentemente, la propuesta de una tipología. Para ello, a partir del modelo previamente adaptado de Birkinshaw (1999) y testado por la técnica de modelaje de ecuaciones estructurales, en una etapa anterior de la investigación, sobre iniciativa de las subsidiarias, fue posible utilizar los indicadores de los constructos para la transferencia del conocimiento y la cultura e iniciativa de las unidades de la muestra para aplicar la técnica de conglomerados. Como resultado, se obtuvieron tres conglomerados, fundamentados en la tipología de Birkinshaw (1995) para clasificar las subsidiarias, según esta iniciativa, dos fueron clasificados en: (1) Iniciativa de reconfiguración y (3) Iniciativa en el mercado local. Ya que las subsidiarias del conglomerado (2) no pudieron ser clasificadas en la tipología referenciada, este conglomerado fue denominado como iniciativa incipiente. Las subsidiarias del conglomerado Iniciativa de Reconfiguración presentan predominantemente iniciativa interna, a pesar de identificar oportunidades locales de aplicación y ampliación de sus recursos; en cuanto a las subsidiarias del conglomerado Iniciativa en el Mercado Local indican que tanto la transferencia de conocimiento en ambos sentidos (matriz *versus* unidades) como la cultura son relevantes para las iniciativas de estas, destacándose las iniciativas externas. Por último, las subsidiarias del conglomerado Iniciativa Incipiente, son unidades que tienden a presentar culturas similares a la de Brasil, pero la transferencia del conocimiento es

baja, indicando que las unidades internacionales no dominan bien el negocio corporativo para poder proponer iniciativas.

**Palabras clave:** Multinacional brasileña. Subsidiaria. Iniciativa. Cultura. Transferencia de conocimiento.

## I INTRODUCTION

Brazilian companies, after the opening of the market in the late twentieth century, were encouraged to seek new business opportunities in an international context as a way of improving competitiveness.

A survey conducted by the Brazilian Society for the Study of Transnational Corporations and Economic Globalization (SOBEET) in 2010 on 52 Brazilian companies featuring branches abroad showed that 48.8% of these companies intended to increase their investments abroad in 2010-2011, whereas in the year before, only 38.8% planned to do that in 2009-2010. The survey also revealed that 25.9% of those companies mentioned international competitiveness as the main reason of their operations abroad. However, other reasons, such as global demand (19.5%), the search for economies of scale (15.1%) and reducing their dependence on the domestic market (13.7%) were also relevant. Further evidence of the expansion of Brazilian companies abroad includes the internationalization index of the United Nations Conference on Trade and Development (UNCTAD), which rose from 14.9% in 2006 to 16.7% in 2007 and reached 17.4% in 2008 (VALOR ECONÔMICO, 2010).

Thus, the quest for understanding the worldwide process and operation of Brazilian companies in the global context has promoted several academic discussions at national and international level.

Regarding the management of multinational companies, one of the main issues

that have called the attention of researchers is the dichotomy between central control by the headquarters versus the initiative of subsidiaries. On one hand, the central control by the headquarters is positive if we take into account the ease of corporate coordination, the consistency in decision-making, and the decision-making power of managers regarding corporate change processes. On the other hand, decentralization reduces the responsibility of corporate managers, but improves the quality of decisions, motivates subsidiary employees and provides greater speed, flexibility and innovation (PENG, 2008), allowing the subsidiary to take initiative.

However, most of the studies on subsidiaries examine the reality of multinationals located in developed countries, which is justified by the fact that they have existed for a longer period of time.

In that regard, our work is part of a broader study on the subject and aimed to analyze the influence of knowledge transfer and cultural factors on business development initiative of subsidiaries of Brazilian multinationals.

The results presented in this article were obtained by analyzing if culture, knowledge transfer and development initiative of foreign units allow to configure homogeneous groups of Brazilian multinational subsidiaries, i.e., we tried to group the subsidiaries according to the features they have in common, creating a typology of companies based on their types of initiatives.

According to Birkinshaw and Fry (1998, p. 52), what actually makes a subsidiary stand out is its business development initiative (or simply, initiative), defined as the “deliberate and proactive search of new business opportunities by the subsidiary to expand its scope of responsibility, in line with the corporation’s strategic goals.”

The subsidiary’s initiative is highly important for two reasons: it is the main way the multinational may identify opportunities at a worldwide level and it improves operational efficiency due to the internal competition of units (BIRKINSHAW; FRY, 1998). The subsidiaries,

however, need to make every effort to call the attention of the headquarters. This attention reveals the connection between the foreign unit and the headquarters, improving its visibility within the multinational, as well as among other stakeholders (BIRKINSHAW; AMBOS, 2010).

The subsidiary's initiative, however, can directly reflect the stance of the headquarters. Many multinationals analyzed by these authors discourage the entrepreneurial efforts of their subsidiaries, while others agree with the concept in principle, but hamper its development in practice.

This paper contains five sections. It briefly presents the research model used and the respective constructs that guided the cluster analysis. The third section discusses the typology proposed by Birkinshaw to understand the initiative of the subsidiary. After that, the methodological procedures are presented and the fourth section discusses and analyzes the results and the suggested typology applied to the reality of subsidiaries of Brazilian multinational companies. The final remarks conclude this article.

## 2 RESEARCH MODEL AND CONSTRUCTS

The model used in this study is based on the subsidiary initiative model by Birkinshaw (1999). It took into account both the corporate context and the local context of the subsidiary, whose dimensions were classified into structural ones and behavioral ones.

Bower apud Birkinshaw (1999) defines the structural context as a set of organizational forces that influence the process of business definition and impulsion, such as: formal organization, information and control system used to measure organizational outcomes, and systems to measure and reward managerial performance. According to Barnard apud Birkinshaw (1999), the behavioral context is a set of guiding values and beliefs that are developed by senior management. However,

the author emphasizes that the effects of the structural context on initiative were more widely studied than the behavioral context.

Regarding the corporate context, the author identified three relevant dimensions, a structural one, and two behavioral ones. The centralization of decisions is the structural dimension, which shows to what extent corporate managers are in charge of decisions regarding activities undertaken by the subsidiary. The predicted effect of the centralization of subsidiary decisions on their degree of initiative is negative, since many studies describe a connection between decentralization of decision making and entrepreneurial activities (BIRKINSHAW, 1999).

The two behavioral dimensions include the credibility of the subsidiary and the communication between headquarters and subsidiary. Credibility indicates the extent to which the headquarters managers are aware of and confide in the ability of the subsidiary, while communication stands for personal or technological interaction between them, resulting in corporate socialization and integration of regulatory processes based on individual beliefs, values and standards. The author emphasizes that the expected effect of these two behavioral dimensions on initiative is positive, i.e., a high level of communication between the headquarters and the subsidiary and a high level of subsidiary credibility promote initiative (Birkinshaw, 1999).

In this study, the corporate context is represented by the headquarters and its foreign units, taking into account exclusively the communicative dimension, which is characterized in the model by the knowledge flows emitted by the headquarters and acknowledged by the subsidiary. The latter, in turn, also creates and disseminates knowledge internally and to other corporate units, including central management. That interaction results in knowledge transfer as a whole, one of the constructs of this study.

Regarding the context of the subsidiary, Birkinshaw (1999) identified three dimensions:

behavioral context, leadership and distinctive capability. He considers the behavioral context as the workplace, deeply rooted in company ethics, valued by entrepreneurship, collaboration and learning. Distinctive capability is obtained when the subsidiary adds value to its capabilities, which enhances it compared to other units. The author believes that initiative emerges in such a context.

Thus, it was observed that according to the original model by Birkinshaw (1999), the subsidiary context is formed by the behavioral context, which is the workplace, deeply rooted in company ethics, valued by entrepreneurship, collaboration and learning. The author does not consider the behavioral context as a part of the company culture, but its definition leads to that interpretation. Thus, regarding the model proposed by this study, the subsidiary context is formed by knowledge transfer and the cultural aspects of the subsidiary, although these aspects may be influenced by the culture of the country and / or the Brazilian headquarters.

Therefore, the interaction between the corporate context and the subsidiary is fundamental for its initiative, i.e., its way of acting and reacting to the internal (corporate) environment is influenced by the knowledge transfer from headquarters to subsidiary and vice-versa. In the context of the subsidiary, in addition to knowledge transfer, one should take into account its cultural features that result from the culture of both the host country and the headquarters. As a result of these relationships, business opportunities for the corporation as a whole may be identified, which is termed internal initiative.

A third aspect highlighted by the model is the impact of local environmental context on initiative, which is represented by customers, suppliers, competitors, and institutions that interact with the unit, since the following studies

(ANDERSSON; FORSGREEN; HOLM, 2002; BARTLETT; GHOSAL, 1999; BIRKINSHAW, 1999; HOLSAPPLE; JOSHI, 2003; RUGMAN; VERBEKE, 2001) on multinational companies state that foreign subsidiaries should identify ideas and opportunities on the local market so that they may be used by the entire corporation. According to Birkinshaw (1999), a high degree of dynamism on the local market promotes the subsidiary initiative.

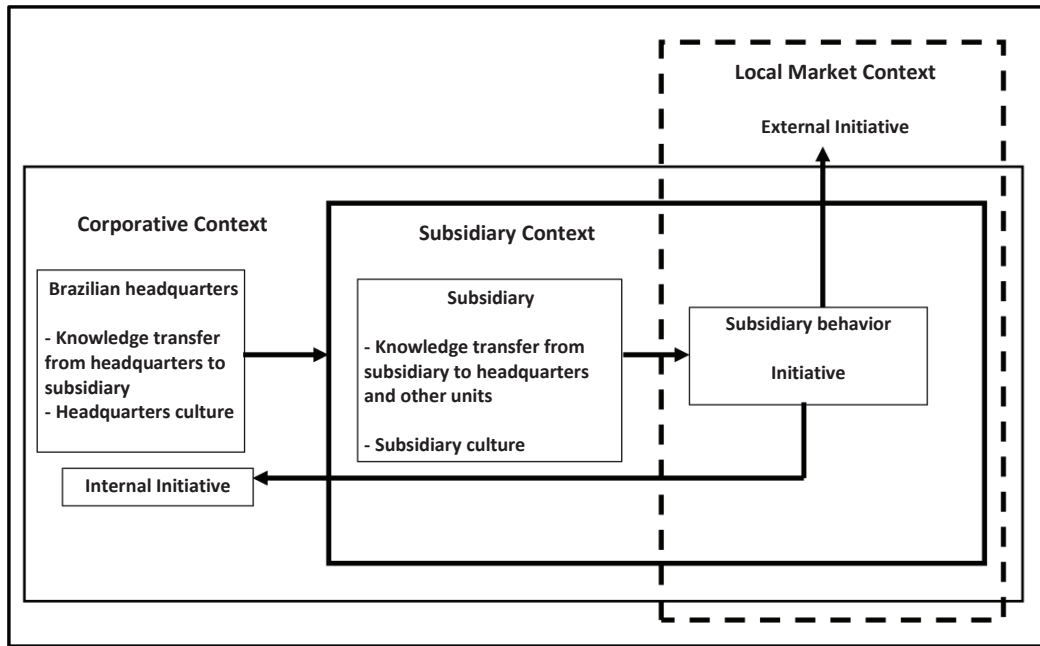
Thus, the subsidiary initiative occurs within both the corporate context and the subsidiary context, which may either promote initiative or suppress it, depending on the nature of the context.

There are basically two different types of initiatives: external focus and internal focus, i.e., the external initiative process and the internal initiative process (BIRKINSHAW; FRY, 1998). The external initiative process takes place by identifying new business opportunities through interaction with customers, suppliers and government entities in the context of the local subsidiary, while the internal initiative process involves identifying new business opportunities within the existing limits of the corporation.

Regarding the external context, networks seem to be essential for the success of subsidiary initiatives. According to Andersson, Forsgreen and Holm (2002), each subsidiary features unique network connection patterns and is hence exposed differently to new knowledge, ideas, and opportunities.

Initiative is seen as a discreet and proactive way to organize, use and expand its resources. It starts when the subsidiary identifies a new product or new market opportunities and ends with the commitment by the corporation as a whole to provide funds to exploit these opportunities (BIRKINSHAW, 1999).





**Figure 1** - Research model

**Source:** Developed based on Birkinshaw (1999).

Therefore, we observed that the three constructs that make up the research model (Figure 1) of this study meet the definitions by Birkinshaw (1999) and are predominantly behavioral: subsidiary initiative, knowledge transfer, and culture.

Knowledge transfer is a process of sharing information, knowledge and practices among the units of multinational companies; it is therefore a construct of the third order that arises from two other constructs: knowledge transfer from the subsidiary to the headquarters and to other units, and knowledge transfer from the headquarters to the subsidiary. Each of these processes is the result of the transfer mechanisms used and the existing barriers. Studies by Gupta and Govindarajan (2000) provide the variables that explain the transfer mechanisms in both cases: meetings, manuals, expatriates, training, travel and electronic tools. The following variables apply to the barriers: integration difficulties, organizational structure, and lack of recognition by the headquarters.

Culture is a set of values and norms shared by a group, organization or society; it is represented in this study by some cultural

aspects of the subsidiary and is therefore a construct of the first order, formed by variables representing the four main dimensions suggested by Hofstede, Hofstede and Minkow (2005). To analyze culture, we take into account power distance, individualism, control of uncertainty, and masculinity.

The power distance dimension represents the perception of the degree of inequality between those in power and those subjected to it. According to Hofstede, Hofstede and Minkow (2005), in countries with a high power distance index, companies are characterized by power centralized by a few people and subordinates who expect to be told what they have to do.

The individualism index represents the type of relationship between a subject and its degree of dependency from groups or companies to which it belongs.

The national culture dimension, to which control of uncertainty refers, measures the degree of tolerance that a culture may allow if confronted with unrest sparked by future events.

The masculinity dimension measures how dominant the results and success are in a certain society, work holding the top position. The female

dimension measures well-being and quality of life of people, and no distinction is made between the roles and emotions of the two genders. It must be mentioned that the original studies of that author contains a fifth dimension, i.e., short, medium or long term orientation, which was not taken into account in this study.

It should also be noted that Brazil was one of the countries studied by Hofstede, Hofstede and Minkow (2005). Their results show that Brazil is a collectivist society, featuring a high uncertainty control dimension and high power distance. Further, Brazil lies within the masculinity dimension, but very close to the female dimension, which makes it almost impossible to pin it down in a precise manner (Hofstede et al., 2002).

As previously mentioned, the subsidiary initiative is the branch's ability to detect opportunities both inside and outside the multinational company as a result of its relationship with the local market, as well as of two complementary approaches: internal initiatives and external initiatives. Internal initiatives result from internal relations within the corporation, while external initiatives are based on the business

networks theory (ANDERSSON; FORSGREEN; HOLM, 2002), i.e., the relationship between the subsidiary and its strategic partners.

It should be noted that although the model is represented in a static way, the process is dynamic. Knowledge transfer occurs simultaneously in both directions and is permeated by cultural aspects, the development of initiatives by these subsidiaries, and recognition by the headquarters.

### 3 THE BIRKINSHAW SUBSIDIARY INITIATIVE TYPOLOGY

Based on his research, Birkinshaw (1995) proposed a subsidiary initiative typology that relates the market opportunity scope (context) used by the unit and the involvement of the headquarters in that process (Figure 2).

The subsidiary is described as playing an entrepreneurial role in which its management distinguishes and analyzes actions to at least keep up business. The subsidiary's entrepreneurial role may be applied to three different markets: local, global and internal.

	Involvement of headquarters	
	Low	High
Local market opportunity	Local market initiative (autonomous)	Local market initiative (integrated)
Global market opportunity	Mandate extension initiative	Competitive bid initiative
Internal market opportunity	Reconfiguration Initiative	Reconfiguration Initiative

**Figure 2** - Initiative process model

**Source:** Birkinshaw (1995).

Just as the target market on which the company operates, the level of involvement of the headquarters is important to understand the different types of subsidiary initiative: reconfiguration initiative, initiative on the local

market, competitive bid initiative, and mandate extension initiative. Table 1 shows the main features of each initiative and their key factors for success.

Initiative	Feature	Key Factors to success
Reconfiguration	Subsidiary which promotes the redistribution of the company's existing resources or of resources are used more efficiently.	Timing Protection of individual efforts. Credibility and good relationship with the headquarters. Convincing proposal.
Local market	Subsidiary that seeks to develop a new product, market, or process by means of business opportunities that are first identified in subsidiary's local context.	High level of autonomy and local presence. Align to the multinational corporation's strategic objectives. Creativity and entrepreneurial spirit at the subsidiary
Competitive bid	Subsidiary that seeks to attract global investment or that focuses on value-added activities at an international level, (in principle) supported by the multinational company / headquarters.	Ensures competitive bid Subsidiary credibility Sales and defense efforts
Mandate extension	Subsidiary that seeks to develop an existing mandate or its proven ability to meet international product demands or market opportunities.	High level of autonomy Sound business plans Strategic compliance with the headquarters

**Chart 1** - Features of subsidiary initiative.

**Source:** Adapted from Birkinshaw (1995).

Thus, subsidiary initiatives should be perceived as one of the possible pathways that lead to the growth and development of multinationals.

#### 4 METHODOLOGICAL PROCEDURES

In earlier stages of that study, under the thematic project GINEBRA - Business Management for the Internationalization of Brazilian Companies -, an electronic survey was carried out that helped to understand the performance of subsidiaries of Brazilian multinationals in many respects. The data collection period comprised eight months; it started in December 2006 and ended in June 2007.

The data collection tool, a questionnaire with closed questions to assess the subsidiaries of Brazilian multinational companies, addressing issues related to knowledge transfer (headquarters to subsidiary and subsidiary to headquarters), initiative (internal and external) and cultural aspects.

It is noteworthy, however, that most of the issues presented several statements to which the

respondent, who represented the subsidiary, was asked to apply a Likert scale, i.e., a measurement scale comprising five response categories ranging from "strongly disagree" to "strongly agree", requiring participants to inform to what extent they agreed with each statement (MALHOTRA, 2004).

Hair Jr. et al. (2006) point out that this kind of scale is originally ordinal. Regarding business management studies, however, it may be treated as an interval scale, which allows performing some specific calculations and statistical analyzes.

The population of this research comprises the subsidiaries of Brazilian multinationals that feature manufacturing activities or professional service abroad. Business representations, stores, and distribution centers abroad were excluded. Based on studies by the United Nations Conference on Trade and Development (UNCTAD) and the Economic Commission for Latin America and the Caribbean (ECLAC), we selected forty-six (46) Brazilian multinationals that had been active by 2006.

Only 29 of them agreed to participate in our survey, i.e., a total population of 93



subsidiaries scattered among several countries. However, only 66 of these actually took part in it, making up the sample of this study. Regarding their business activities, the larger part, 22 subsidiaries, operate as system builders, followed by natural resources and eventually information technology and services.

At one of the survey data analysis stages, we used a structural equation modeling technique to validate the proposed model and the assumptions listed in a larger study.

Several methods exist to estimate the measurement and structural models. We used the PLS-PM (Partial Least Squares Path Modeling) since no assumptions were made regarding data distribution, since it is less demanding than the LISREL regarding sample size and more appropriate in exploration cases (HAIR JR.; RINGLE; SARSTEDT, 2011; HENSELER; RINGLE; SINKOVICS, 2009; RINGLE; SARSTEDT; STRAUB, 2012). Data processing was performed using the SmartPLS 2.0 M3 software program (RINGLE; WENDE; WILL, 2005).

Another important aspect relates to the sample size, which was checked by analyzing the test power. Its importance is emphasized in the literature on statistics in social science (FAUL et al., 2009). The power of a statistical test is the probability that the test will reject the null hypothesis if it is false. It depends on three classes of parameters: the level of significance (probability of type I error - alpha), the sample size, and the effect size.

Depending on the available resources, the stage of the research process, and the research question, five different types of power analysis can be performed: a priori power analysis, post hoc power analysis, adjusted power analysis, sensitivity analysis, and criteria analysis (FAUL et al., 2009).

To evaluate whether the sample size (66 cases) was large enough, a sensitivity analysis using the G\*Power 3 software program was performed including a multiple linear regression, as recommended by Chin & Newsted (1999) and Garson (2012), to test the total effect (the test hypothesis being that the R2 value of the population is not equal to zero).

According to the criteria quoted by Cohen apud (FAUL et al. 2009), the effect sizes of 0.02, 0.15 and 0.35 are considered small, medium and large, respectively. An R2 reference may be measured based on the effect size value. To calculate it, we used 5% alpha, 80% power, a sample of 66 units, and 2 predictors. We obtained an output of 0.153 for the effect size, which is equivalent to an R2 of 13.3%. Therefore, as the result was equal to 28.9%, the number of subsidiaries, although reduced, was sufficient to validate the research model.

As a result, the structural equation modeling technique yielded the scores of the constructs for each of the 66 units of the sample.

Thus, based on the knowledge transfer construct scores (headquarters to subsidiary and subsidiary to headquarters), culture, and initiative (internal and external) of the structural equation model, we used the clusters technique to investigate whether culture, knowledge transfer, and initiative allow us to configure homogeneous groups of subsidiaries and use them to eventually create a typology.

Hair Jr. et al. (2006, p. 400) defines the cluster (or group) analysis as a multivariate technique of interdependence, since it attempts to combine "objects that show high internal homogeneity (within the cluster), as well as high external heterogeneity (between clusters)". The authors suggest that one must first define the distance measure, the method of agglomeration and the number of groups to be included.

There are two cluster analysis techniques: the analysis of hierarchical clusters (Hierarchical Cluster), which is applied when a researcher doesn't know a priori the number of groups that are to be included and wishes to find the best answer. Then, the k-means cluster analysis (k-means), applied when the number of the groups is known a priori, which can be used to refine the results of the hierarchical model and/or be applied to large volumes of data.

To measure similarity, we need a simultaneous comparison method for observations on the grouping variables. The quadratic Euclidean distance, the Pearson correlation, the Chebychev,

and Blocks are the main types of distance measure. Among these methods, the first one is the most used one, and it was applied in this study as well.

Regarding the clustering method, the criteria applied to include similar objects into groups according to the possibilities available in the Statistical Package for the Social Sciences (SPSS) should always be to maximize the differences between the groups in comparison with the variation within them (Pohlmann, 2007). Among the algorithms, we highlight the variation between groups (between-cluster variation) which tends to combine them with smaller internal variations.

In this study, we first analyzed hierarchical clusters, the Euclidean quadratic distance being the distance measure and the between group measure, as the clustering method. To refine the obtained results, we applied the k-means cluster analysis for 3 clusters.

The variance analysis technique was used to strengthen the cluster results. ANOVA is a means test for two or more populations; in this case, we applied it to the variables that resulted in clusters. For each variable, the F statistic is obtained and the higher its value, the greater its relevance to discriminate clusters.

In addition to that, the level of significance of variables is another aspect that should be

checked by ANOVA, because if some variable show a significance level greater than 0.05, we must remove it and reprocess the remaining data.

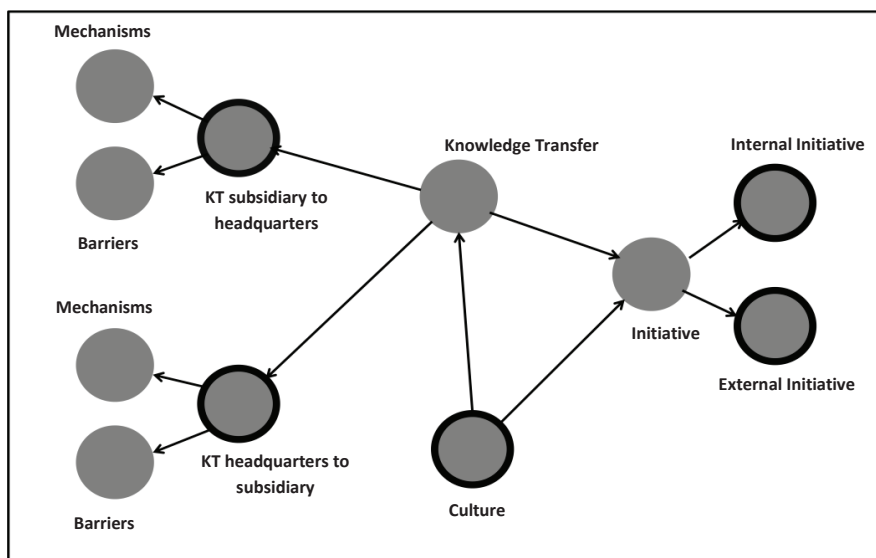
## 5 RESULTS PRESENTATION AND ANALYSIS

This section is structured in two parts: the first one presents the statistical technique of clusters and the analysis that arranges subsidiaries into groups. In the second part, the results are discussed in light of the theoretical model applied to the reality of the Brazilian subsidiaries of multinational companies, providing them with a typology proposal in terms of initiative.

### 5.1 Formation and characterization of clusters

For each of the 66 Brazilian multinational subsidiaries of the sample, after applying the structural equation technique, the constructs we used yielded a certain value (score) on the ratio scale.

To configure the clusters, we used the scores of five constructs (highlighted in Figure 3) for each the subsidiary: knowledge transfer from headquarters to subsidiary, knowledge transfer from the subsidiary to the headquarters, culture, internal initiative, and external initiative.



**Figure 3** - Simplified research model

Source: the authors.

It is noteworthy that the constructs knowledge transfer from the subsidiary to the headquarters (*transf\_sub\_matr*) and knowledge transfer from the headquarters to the subsidiary (*transf\_mat\_sub*) result from the applied transfer mechanisms and the barriers in both direction. Taking into account the results for the mechanisms, we found that the higher the value, the higher the use, while in terms of barriers, the lower the value, the less barriers there are in the process. Thus, it is understood that the larger the value of the transfer constructs, the greater the existing transfer process in each direction: headquarters to subsidiary or vice versa.

Regarding the initiative capacity of the subsidiary in detecting opportunities both internally, within the multinational, and externally, we used the following two constructs: external initiative (*inic\_ext*) and internal initiative (*inic\_int*). Thus, a high internal initiative value shows that the subsidiary identifies business opportunities for the multinational as a whole, while a high external initiative value shows that the subsidiary seeks business opportunities within its local context, based on its relationship with customers, suppliers and other types of partners.

Culture is the result of variables that represent the four main dimensions suggested by Hofstede, Hofstede and Minkow (2005): power distance, collectivism, uncertainty control, and masculinity. It should be noted that we structured the questions related to culture of our

data collection tool in such a way as to be able to analyze how similar the results would be in relation to the cultural features of Brazil, taking into account the study of Hofstede, Hofstede and Minkow (2005). Thus, the higher the value of the subsidiary's culture construct, the closer its cultural proximity to Brazil, whose main features include: high indexes of power distance and uncertainty control, collectivism and a trend towards masculinity.

To identify subsidiary groups and the possibility to establish a typology, we used the statistical technique of hierarchical clustering. The squared Euclidean distance was used as the distance measure and, between groups (between-groups), we used the clustering method that prioritizes the lowest distance mean between all pairs. After that, the k-means (k-means) of three clusters were processed, including 100 interactions, which allowed us to refine and further analyze the results.

The cluster technique analysis is enhanced by using ANOVA. Analyzing the F distribution (Chart 1), one may note that as the internal initiative showed the highest value (41.336), it was the variable that contributed most to the formation of clusters, while the external initiative contributed the least. Another aspect that called our attention was the significance level of the variables. As all the variables featured a significance level lower than 0.05, there was no need to reprocess the data.

**Table 1** - Variance analysis of clusters in relation to subsidiary initiative.

	Cluster		Error		F	Sig.
	Mean Square	df	Mean Square	df		
Culture	11.226	2	.461	63	24.326	.000
<i>inic_exte</i>	12.787	2	.811	63	15.771	.000
<i>inic_inter</i>	37.691	2	.912	63	41.336	.000
<i>transf_mat_sub</i>	8.770	2	.495	63	17.708	.000
<i>transf_sub_matr</i>	14.223	2	.501	63	28.379	.000

**Source:** the authors.

Thus, Chart 2 shows the distribution of the 66 sample subsidiaries in relation to the clusters. It should be noted that cluster 1 is the most representative one, since it contains 29 units, followed by cluster 2, containing 27 units, and cluster 3, containing 10 units, i.e., the lowest participation.

**Table 2** - Distribution of subsidiaries within the clusters.

Cluster	1	29.000
	2	27.000
	3	10.000
Valid		66.000
Missing		.000

**Source:** the authors.

The final values of each construct of the three clusters are shown in Chart 3.

Constructs	Clusters		
	C 1	C 2	C 3
Internal initiative	Medium High	Low	Medium
External initiative	Medium	Low	Medium High
Culture	High	Medium	Medium
KT headquarters to subsidiary (TC_MS)	Medium High	Low	Medium
KT subsidiary to headquarters (TC_SM)	Medium	Low	Medium

**Chart 2** - Initial Characterization of Clusters

**Source:** the authors.

Therefore, cluster 1 (C 1) shows high values for culture, medium values for external initiative and knowledge transfer of the subsidiary to the headquarters, and high medium values for internal initiative and knowledge transfer from the headquarters to the subsidiary.

Cluster 2 (C 2), however, shows average values for culture and low values for all the other variables. Since the values were low for both initiatives, it is understood that the subsidiaries of that group detect few business opportunities both within their local market and within the corporation as a whole.

On the other hand, in Cluster 3, the value of the external initiative is medium high, while

**Table 3** - Final values of variables of the three clusters

	Cluster		
	1	2	3
culture	3.5347	2.4218	2.2201
inic_exte	2.3116	1.2741	2.9251
inic_inter	3.1262	.8418	2.5590
transf_mat_sub	3.0960	1.9760	2.5698
transf_sub_matr	2.7126	1.3246	2.4655

**Source:** the authors.

While those final figures may vary between 0 and 5, the values are predominantly low or medium. To facilitate the analysis, however, we classified these figures into categories: high (above 3.5), medium high (2.7 to 3.4), medium (between 2.1 and 2.6) and low (less than 2.0), as per Table 2.

the other values remain medium. This group represents subsidiaries that seek and identify much more opportunities through their relationships in the local context, i.e., based on their contacts with customers, suppliers and other types of partners.

### 5.2 Cluster and typology proposal analysis

In this section, the results are discussed in light of the proposed model and the theoretical underpinning of the research. It should be noted that the model links knowledge transfer and culture to subsidiary initiative, the latter being always the starting point of the results discussion. The subsidiary initiative may occur in two ways:

internally, within the context of the corporation as a whole, or externally, when the subsidiary seeks business opportunities only within its local market.

Birkinshaw (1995) developed a subsidiary initiative typology which divides the market opportunity context used by the subsidiary and the headquarters involved in the process into four categories: reconfiguration initiative, local market initiative, competitive bid initiative and mandate extension initiative.

Thus, based on that typology, we sought to interpret the subsidiary clusters of Brazilian multinationals, terming them according to the

initiative features. For clusters 1 and 3, we used the predetermined categories of the typology by Birkinshaw (1995): reconfiguration initiative and local market initiative, respectively. We were unable, however, to classify cluster 2 according to that typology and created thus the term incipient initiative.

Table 3 shows the features of the three clusters regarding internal and external initiative, culture, knowledge transfer between headquarters and subsidiary. We also sought to draw attention to the prevalence in each group of continents that host units, as well as the sector of each unit.

Feature	Cluster 1	Cluster 2	Cluster 3
<b>Nomenclature</b>	<b>Reconfiguration Initiative</b>	<b>Incipient Initiative</b>	<b>Local Market Initiative</b>
Internal initiative	Medium High	Low	Medium
External initiative	Medium	Low	Medium High
Culture	High	Medium	Medium
Knowledge Transfer headquarters to subsidiary (TC_MS)	Medium High	Low	Medium
Knowledge Transfer subsidiary to headquarters (TC_SM)	Medium	Low	Medium
Continent	- (North) America - Europe - Asia	- (Latin) America - Africa	- (Latin) America
Business area	- System Builder; - Services and IT	- Natural resources	- Basic Inputs

**Chart 3** - Terming and characterization of clusters

**Source:** the authors.

Cluster 1 subsidiaries, termed as Reconfiguration Initiative, according to the typology by Birkinshaw (1995), predominantly feature internal initiative, despite identifying local opportunities for application and expansion of its resources.

It is interesting to note that this group, made up of units that are mainly located in North America, Europe and Asia, which are continents that have different cultural values than Brazil, the values culture and knowledge transfer from the subsidiary to the headquarters are significant, which shows that those units feature cultural similarity with Brazilian unit. In other words, some aspects of Brazilian culture may be present

in the dynamics of those units. We consider that a natural phenomenon, since the sample subsidiaries are units of Brazilian multinationals.

Thus, the fact that the culture of a subsidiary shows some similarities with Brazil culture is considered a relevant factor in knowledge transfer, which favors that process, according to Takeuchi and Nonaka (2008). Therefore, as the subsidiaries feature a better understanding or a greater similarity with the Brazilian culture or headquarters organization, the larger is the sharing of knowledge and practices, as shown by the representative values in Cluster 1. That dynamic process of knowledge conversion helps the subsidiary to increasingly understand the



multinational's business and it therefore may find opportunities to optimize resources, which is what characterizes the internal initiative.

Birkinshaw (1995) highlights two essential attributes of that type of subsidiary: credibility and a good relationship with the headquarters, as well as the defense of the unit's individual efforts.

These attributes may be related to contextual aspects of the countries where the subsidiaries are located, as well as to the high investments in technology, research and innovation, which could be a cause of high internal initiative. As those countries feature high economic development, a high level of technological contribution and development in organizational processes is acknowledged, which benefits Brazilian multinationals. As the Brazilian international unit is gradually inserted in that environment and headquarters recognizes its initiatives, there is a contribution to the learning process and the organizational development of the Brazilian multinational.

Regarding the sectors of activity, it is interesting to compare the types of activities type of units with the results of the initiative. Cluster 1 (Reconfiguration Initiative) shows a higher number of system assembly units and information technology and service units, which are characterized by the need for frequent and direct contact with the Brazilian headquarters for the alignment of production processes or employees. This fact explains the medium and medium high interaction, which occurs through knowledge transfer between the headquarters and the subsidiary and high internal initiative.

However, Cluster 3 subsidiaries, in this study named Local Market Initiative, as suggested by Birkinshaw (1995), show that both knowledge transfer in both directions (headquarters versus subsidiaries) and culture are relevant for their initiatives. However, more important than interactions in corporate contexts are local contact networks with customers, suppliers and associations - which are characterized as external initiative -, since they are fundamental to the pursuit of business opportunities.

The subsidiary's high level of autonomy and presence within the local environment, its

alignment with the strategic objectives of the multinational, its creativity and entrepreneurial spirit are, according to Birkinshaw (1995), the key factors to success for subsidiaries featuring Local Market Initiative.

Regarding complementary characteristics, Cluster 3 subsidiaries are mainly located in Latin America, most of which deal with basic inputs.

On one hand, we observed that the culture value was medium, which is consistent with the similarities between Latin American countries and Brazil. Cultural proximity is a relevant factor of the knowledge transfer process between units, resulting in better local performance. On the other hand, their business area, basic inputs, requires intensive interaction with the stakeholders of the local context, since it is an intermediary link of the supply chain, providing greater external initiative. Thus, Brazilian multinationals that operate in that sector need to constantly interact with their customers and the local market to sell their products, which may result in high external initiative.

Eventually, Cluster 2 subsidiaries, called Incipient Initiative in this study, feature cultures that are similar to the Brazilian one, but knowledge transfer is low from headquarters to the subsidiary and vice-versa. As a result, albeit at low intensity, international units are not familiar enough with the corporate business to propose initiatives.

The subsidiaries of that cluster are mainly located in Latin America and Africa, regions formed by countries with low technical and technological development, despite some cultural similarity with Brazil.

The most probable explanation for the low initiative of the units of that group is their business area, especially regarding those who work with natural resources, agribusiness and mining. In these cases, work processes are very well designed and standardized, requiring very little improvement. In addition to that, most Brazilian multinationals that operate in these sectors process demands that have been previously defined in those countries, which doesn't require active interaction with local contact networks to foster business opportunities.



It therefore becomes clear that each subsidiary starts its initiative process taking into account its resources, both internally and regarding the context in which it operates. As for the internal initiative, resources include high knowledge transfer, mainly from headquarters to subsidiary, as well as cultural proximity, whereas in the case of the external initiative, in addition to knowledge transfer, subsidiaries seek to optimize their local contact networks.

We further assume that as soon as those subsidiaries have fully developed their initiatives, which may be internal or external, depending on other favorable conditions, such as the local context of the country, they may start developing complementary activities, promoting the two types of initiative to eventually develop a Mandate Extension Initiative (BIRKINSHAW, 1995), i.e., units seeking to build a mandate in strength or proven ability in meeting the international demand of a product or a market opportunity.

## 6 CONCLUSIONS

This study aimed to find out if culture, transfer knowledge, and initiative allow configuring homogeneous groups of subsidiaries. To do so, we drew up a typology proposal on the initiative of Brazilian subsidiaries of multinational companies to contribute to the studies on internationalization.

Based on the typology developed by Birkinshaw (1995) that classifies subsidiaries according to their initiative, two clusters were classified into: (1) Reconfiguration Initiative and (3) Local Market Initiative. Since Cluster (2) subsidiaries could not be classified according to the referenced typology, it was termed Incipient Initiative. We further tried to point out the predominance in each group of continents that host units, as well as their business area.

Cluster 1, called reconfiguration initiative, is characterized by subsidiaries whose cultural features converge with the Brazilian ones and which strongly interact with their headquarters in terms of knowledge transfer. This kind of

dynamics provides those units with enough information on the international affairs of their company to put forward process improvement proposals regarding the corporation as a whole. This group mainly includes companies that operate in the field of services, technology, and system builders located in countries that are highly developed in research and technology, which provides the Brazilian headquarters with even greater learning opportunities.

On the other hand, Cluster 3 subsidiaries, classified under local market initiative, feature high external initiative values, seeking opportunities based on their contact networks in their local context. The remaining variables showed medium values, which shows how important knowledge transfer among units is, and cultural proximity with Brazil regarding local operations. Somehow, this process may be leveraged by the unit locations, which mainly lie in Latin America, and by the fact that the basic inputs business requires permanent customer prospecting.

Cluster 2, which could not be classified according to the initial typology by Birkinshaw (1995), was termed Incipient Initiative. This group presents low values regarding all variables, except a medium value for culture, since those subsidiaries are mainly located in Latin America and Africa. We believe that their low initiative (internal and external) is primarily due to their business, i.e., natural resources, where the international service demands precede the internationalization process of the Brazilian multinational.

The main limiting factor of this study was its sample size, but that didn't prevent us from achieving our goal. Regarding future studies, in addition to increasing the sample of subsidiaries of Brazilian multinational companies, we intend to improve the initial typology.

As the participation of Brazilian multinationals increases within the international context, their headquarters will be able to identify the extension of the actions and initiative of their subsidiaries, based on their business and geographic location, which will in turn allow the companies to establish strategies and guide business actions.

## LITERATURE

ANDERSSON, U.; FORSGREN, M.; HOLM, U. The strategic impact of external networks: subsidiary performance and competence development in the multinational corporation. **Strategic Management Journal**, Chichester, v. 23, n. 11, p. 979-996, Nov. 2002.

BARTLETT, C; GHOSHAL, S. **Managing across borders: the transnational solution**. Boston: HBS Press, 1999.

BIRKINSHAW, J. **Entrepreneurship in multinational corporations: the initiative process in foreign subsidiaries**. 1995. 401 [pages]. Doctoral Dissertation (Philosophy) - Faculty of Graduated Studies, The University Western of Ontario, Canada, 1995.

\_\_\_\_\_. The determinants and consequences of subsidiary initiative in multinational corporations. **Entrepreneurship Theory and Practice**, [S.l.], v. 24, n. 1, p. 9-36, Fall 1999.

\_\_\_\_\_; AMBOS, T. C. Headquarter's attention and its effect on subsidiary performance. **Management International Review**, Wiesbaden, v. 50, n. 4, p. 449-469, Aug. 2010.

\_\_\_\_\_; FRY, N. Subsidiary initiatives to develop new markets. **Sloan Management Review**, Cambridge, v. 39, n. 3, p.51-61, Spring 1998.

\_\_\_\_\_; HOOD, N.; STEFAN, J. Building firm-specific advantages in multinational corporations: the role of subsidiary initiative. **Strategic Management Journal**, Chichester, v. 19, n. 3, p.3-19, Mar. 1998.

CHIN, W. W.; NEWSTED, P. R. Structural equation modeling analysis with small samples using partial least squares. In: HOYLE, R. H. (Ed.). **Statistical strategies for small sample research**. Thousand Oaks, CA: Sage Publications, 1999. p. 307-341.

FAUL, F. et al. Statistical power analyses using G\*Power 3.1: tests for correlation and regression

analyses. **Behavior Research Methods**, Austin, v. 41, n. 4, p.1149-1160, Nov. 2009.

GARSON, G. D. **Partial least squares: regression and path modeling**. Asheboro, NC: Statistical Publishing Associates, 2012.

GUPTA, A.; GOVINDARAJAN, V. Knowledge flows within multinational corporations. **Strategic Management Journal**, Chichester, v. 21, n. 4, p. 473-496, Apr. 2000.

HAIR JR. J. et al. **Fundamentos de métodos de pesquisa em administração**. Porto Alegre: Bookman, 2006.

HAIR JR., J. F.; RINGLE, C. M.; SARSTEDT, M. PLS-SEM: indeed a silver bullet. **The Journal of Marketing Theory and Practice**, [S.l.], v. 19, n. 2, p. 139-152, Nov. 2011.

HENSELER, J.; RINGLE, C.; SINKOVICS, R. The use of partial least squares path modeling in international marketing. **Advances in International Marketing**, [S.l.], v.20, p.277-319, 2009.

HOFSTEDE, G. et al. What goals do business leaders pursue?: a study in fifteen countries. **Journal of International Business Studies**, Newark, v.33, n.4, p.785-808, Oct./Dec. 2002.

HOFSTEDE, G.; HOFSTEDE, G. J.; MINKOW, M. **Cultures and organizations: software of the mind: intercultural cooperation for survival**. New York: McGraw-Hill, 2005.

HOLSAPPLE, C.; JOSHI, K. knowledge management ontology. In: HOLSAPPLE, C. (Ed.). **Handbook on knowledge management I**. New York: Springer, 2003. .Cap. 6, p. 89-128.

MALHOTRA, N. **Pesquisa de marketing: uma orientação aplicada**. 3ed. Porto Alegre: Bookman, 2004.

PENG, M. **Estratégia global**. São Paulo: Thomson Learning, 2008.

POHLMANN, M. Análise de conglomerados. In: CORRAR, L.; PAULO, E.; DIAS FILHO, J. **Análise multivariada para os cursos de administração, ciências contábeis e economia**. São Paulo: Atlas, 2007. Cap. 6, p. 324-387.

RINGLE, C. M.; SARSTEDT, M.; STRAUB, D. W. A critical look at the use of PLS-PM in MIS Quarterly. **MIS Quarterly**, Minneapolis, v. 36, n. 1, p. iii–xiv, Mar. 2012.

RINGLE, C. M.; WENDE, S.; WILL, A. **SmartPLS 2.0 M3 (beta)**. Germany: University of Hamburg, 2005. Available at: <<http://www.smartpls.de>>. Accessed: July 07, 2011.

RUGMAN, A.; VERBEKE, A. Subsidiary-specific advantages in multinational enterprises. **Strategic Management Journal**, Chichester, v.22, n. 3, p.237-250, Mar. 2001.

TAKEUCHI, H.; NONAKA, I. **Gestão do conhecimento**. Porto Alegre: Bookman, 2008.

VALOR ECONÔMICO. Multinacionais brasileiras. São Paulo, v. 3, n. 3, set. 2010. Suplemento Especial.