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## THE DYNAMICS OF THE CAUSAL FACTORS IN THE EVOLUTION OF THE SUBSIDIARY OF MULTINATIONALS: IBM ON THE BRAZILIAN MARKET

*Sérgio Fernando Loureiro Rezende<sup>1</sup>*

*Plínio Weller Corrêa<sup>2</sup>*

*Angela França Versiani<sup>3</sup>*

**Abstract:** The review of the literature on typologies and on the development of multinational subsidiaries points to the existence of a divergence between the way of conceiving and/or operationalising the evolution of the subsidiary and the groups of causal factors which act in this process. Whereas the evolution is usually conceived on the basis of a dynamic focus, the groups of causal factors are statically framed. The present article uses this divergence as a starting point; its objective is to analyse the dynamics of the groups of causal factors in the evolution of a multinational subsidiary. On the basis of the case study of the evolution of the Brazilian IBM subsidiary, the results indicate that the manifestation of the groups of causal factors is more complex than that which is described in the literature; it is subject to three properties: combination, frequency and temporal position.

**Keywords:** Subsidiary; Evolution; Causal factors; Multinationals

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<sup>1</sup> PhD in Marketing of Lancaster University (UK). Professor of the Programa de Pós-graduação em Administração [Ostgraduate Programma in Administration] at Pontifícia Universidade Católica de Minas Gerais [Pontifical Catholic Univerasityof the State of Minas Gerais], Belo Horizonte, MG, Brazil; e-mail: sflrezende@gmail.com.

<sup>2</sup> Master in Administration of the Pontifícia Universidade Católica de Minas Gerais. [Pontifical Catholic University of the State of Minas Gerais] Executive in the Executive of the Cadeia Integrada de Suprimentos e Desenvolvimento de Negócios na IBM-Brasil, São Paulo, SP, Brasil; e-mail: pliniow@br.ibm.com.

<sup>3</sup> Phd in Administration of USP – Universidade de São Paulo – University of São Paulo. Professor of the Programa de Pós-graduação em Administração [postgraduate programme of Administration of the Pontifícia Universidade Católica de Minas Gerais Pontifical Catholic Univerasityof the State of Minas Gerais], Belo Horizonte, MG, Brasil; e-mail: versiani@pucminas.br

## Introduction

The literature on the development (BIRKINSHAW; HOOD, 1997) or on the evolution (BIRKINSHAW; HOOD, 1998) of multinational subsidiaries aims to understand the process through which a determined subsidiary adds (or subtracts) value to the multinational it belongs to (BIRKINSHAW, 1998). Authors such as Birkinshaw (1998), Rugman and Verbeke (2001), Paterson and Brock (2002), Oliveira Junior, Borini and Guevara (2009) and Oliveira Junior (2010) suggest that this process is influenced by a series of causal factors, such as, for example, the autonomy of the subsidiary (OLIVEIRA JUNIOR; BORINI, 2012), the involvement of the parent company in the lateral knowledge transfer in the multinational company (YAMIN; TSAI; HOLM, 2011) and in local institutions (RODRIGUES; CHILD, 2012). According to Rugman and Verbeke (2001) and Paterson and Brock (2002), these factors can be categorised into three groups: subsidiary, parent company and context.

It is interesting to observe that in this literature the development or the evolution of the subsidiary has been conceived in a dynamic way, whereas the three groups of causal factors which act in this process are first and foremost statically framed. More specifically, on the part of the evolution of the subsidiary, we note the existence of a still recent concern (BLOMKVIST; KAPPEN; ZANDER, 2010) to understand the establishment of the subsidiary in a determined international market and the alterations which ensue after this event (GAO; PAN, 2010). This concern is justified on the basis of the ascertainment that the initial events have the potential to influence late events of the evolution of the subsidiary (ARAUJO; REZENDE, 2003; ARREGLE; BEAMISH; HEBERT, 2009).

On the part of the causal factors, we emphasise, in an opposed way, a concern to select a determined factor in which supposedly resides the explanation of the development or of the evolution of the subsidiary; or, alternately, to produce exhaustive lists of causal factors (RUGMAN; VERBEKE, 2001; PATERSON; BROCK, 2002). Thus it seems that there is the presupposition, although implicit, that the evolution of the subsidiary can be understood on the basis of precise causal factors (DORRENBACHER; GAMMELGAARD, 2006), such as, for example, those which are related to the local context (MORSCHETT; SCHRAMM-KLEIN; SWOBODA, 2010); or that the same groups of causal factors are always present in the diverse events which characterise the evolution of the subsidiary (NACHUM; SANGYOUNG, 2011).

In this sense, we point out the existence of a divergence between the way of conceiving and/or operationalising the evolution of the subsidiary (dynamic focus) and the groups of causal factors which exert an influence on this process (static focus). In a way, this has compromised our understanding with respect to the multinational subsidiaries from the evolutionary viewpoint

This is the starting point of the present study, the objective of which is to analyse the dynamics of the groups of causal factors (subsidiary, parent company and context) in the evolution of a multinational subsidiary. According to Abbott (2011) and, more recently, to Halinen, Medlin and Tornroos (2012) and Halinen, Tornroos and Elo (2013), such objective requires the explicitation of the time variable not only in procedural terms, but also in causal ones.

It is convenient to emphasise that, as far as the Brazilian context is concerned, this article joins in with the effort made by Boehe (2007), Oliveira Junior, Borini and Guevara (2009), Rocha, Borini and Spers (2010), Oliveira Junior (2010), Oliveira Junior and Borini (2012) and Costa, Borini and Amatucci (2013) who, in the course of the last years have dedicated themselves to understanding the operations of multinationals on the national market by focusing on the Brazilian subsidiaries.

This study is illustrated by the evolution of the Brazilian IBM subsidiary, a North-American informatics industry. Taking into consideration that this subsidiary was already the object of Espina's (1993) and Beloch's and Fagundes' (1997) study, we can say that the present article is different with respect to the following aspects. Firstly, Espina's article (1993) analyses the trajectory of IBM until the 1970s, prioritising the impact of the Brazilian subsidiary on the Brazilian technological and industrial development. According to our understanding, the author was interested in the comprehension of the way in which the evolution of the Brazilian IBM subsidiary influenced the context in which it operated from the technological viewpoint. Besides extending this evolution until 2009 and in a distinct way, our article seeks to point out and to understand how the causal factors, which are related to the subsidiary, to the parent company and to the context, acted in the evolution of the Brazilian IBM subsidiary. That is to say, the emphasis is put on the dynamics of the causal factors which are responsible for the configuration of the trajectory of the subsidiary. Secondly, Beloch's and Fagundes' work (1997) is a detailed report of the evolution of the Brazilian IBM subsidiary from its establishment until the beginning of the 1990s. Since it was elaborated to celebrate IBM's 80 years in Brazil, the authors prioritise the diverse stories the evolution of the Brazilian affiliate is composed of. Thus there is no concern about the explanation of this process and no concern either about the analysis of its causal factors.

This being stated, our results show that the dynamics of the causal factors in the evolution of the Brazilian subsidiary can be characterised by three properties: combination, frequency and temporal position.

The present article is structured in the following way. The literature review is described in the three following sections. The methodological detailed account corresponds to section five. It is followed by the description and analysis of the data. The next section refers to the discussion of the results which were presented before. We conclude the article with the main contributions, limitations and research suggestions.

### **Multinational subsidiary: a study review**

Traditionally the literature on multinationals was founded on the basis of the conception that the parent company plays a central role in the configuration and coordination of the operations of the affiliates (PORTER, 1986; CHANDLER, 1991). This means, among other aspects, that the parent company constitutes itself in the exclusive locus of knowledge generation which is commercially exploited afterwards by means of its subsidiaries in diverse geographical contexts (VERNON, 1966). Due to this prerogative, we subscribe to the idea that the parent company is the actor that is responsible for the control of the subsidiaries (FORSGREN, 1989). In a recent work, Ambos and Mahnke (2010) reinforce the centrality of the parent company in multinationals by defending that this actor assumes two roles. The first, of entrepreneurial nature, consists in exploiting the business opportunities in international markets. The second, of integrative nature, is related to the optimisation of resources and to the integration of the activities of the value chain.

Nevertheless, this conception of the parent company has been questioned by innumerable works (BIRKINSHAW, 1994; PATERSON; BROCK, 2002; CIABUSHI; FORSGREN; MARTIN, 2011), which all together advance the idea that other actors, outside or inside the multinational, have the potential to exert a strong influence on the operations of these firms. For example, Birkinshaw and Hood (1997) draw attention to the subsidiaries as a locus of idiosyncratic knowledge and therefore they are precious for the multinational. Anderson, Forsgren and Holm (2002) suggest that relationships with local buyers and/or suppliers constitute themselves into an important channel for technological knowledge transfer. Sun, Mellahi and Tun (2010) and Fernandes, Bandeira-de-Mello and Zanni (2012) defend that the local performance of the multinational is related to the degree of this actor's political immersion, thus emphasising the role of governmental organs.

Specifically with respect to the subsidiary, we observe that two research tendencies have been built during these last years (PATERSON; BROCK, 2002): roles and/or typologies and development and/or evolution of subsidiaries. The first has as guiding principle the fact that the subsidiaries are not necessarily homogeneous in terms, for example, of the configuration of the local value chain and, therefore, they can be differentiated on the basis of the diverse roles they assume in the multinational (OLIVEIRA JUNIOR; BORINI; GUEVARA, 2009). Thus, besides the traditional role which consists in acting as a local establisher of that which the parent company conceived (WHITE; POYNTER, 1984), we came to the conclusion that, eventually, the subsidiaries can assume the role of strategic leadership (BARTLETT; GHOSHAL, 1986), global innovator (GUPTA; GOVINDARAJAN, 1991), world mandate (BIRKINSHAW; MORRISSON, 1995), partner (TAGGART, 1997), resource generator (RANDOY; LI, 1998), global, regional or local leadership (ENRIGH; SUBRAMANIAN, 2007) or external contributor (WANG; LIU; LI, 2009). A common point to these diverse roles is that the scope of actuation of a determined subsidiary extrapolates the local context to a lower or higher degree (REZENDE; VERSIANI, 2010). In this case we have situations in which the subsidiary interferes in the operations of the sister subsidiaries (YAMIN; TSAI; HOLM, 2011), it coordinates regional operations (ARREGLE; BEAMISH; HEBERT, 2009; TORRE; ESPERANÇA; MARTINEZ, 2011) or it even exports knowledge to the parent company itself (AMBOS; AMBOS; SCHLEGELMICH, 2006; BORINI; OLIVEIRA JUNIOR; SILVEIRA; CONGER, 2012)

The second research tendency, which is raised about the subsidiary, refers to the development (BIRKINSHAW; HOOD, 1997) or evolution (BIRKINSHAW; HOOD, 1998) of this actor. These studies are founded on the criticism that typological studies depict a determined role of the subsidiary within a relatively "short" temporal horizon (BIRKINSHAW; HOOD, 1998) and they concentrate on the alterations of these roles in the course of time. That is to say, they adopt a dynamic focus in this second tendency (BIRKINSHAW, 1998) or an evolutionary one (BLOMKVIST; KAPPEN; ZANDER, 2010).

### **Evolution of the multinational subsidiary**

In spite of the ascertainment that the studies on the evolution of the multinational subsidiary are still in an embryonic stage (BLOMKVIST; KAPPEN; ZANDER, 2010, p.1526), we can advance the idea that they have gravitated around two topics (PATERSON; BROCK, 2002): the evolution process of the subsidiaries themselves and the causal factors of this process.

As far as the process is concerned, Birkinshaw (1998) suggests that the development of the subsidiary can be represented by the way in which this actor aggregates value to the multinational in the course of time. Normally, this process culminates with the development of local products (BOEHE, 2007), hosting of a centre of excellence which is related to some activity of the value chain (HOLM; PEDERSEN, 2000), or even the conquest of a world product mandate (OLIVEIRA JUNIOR; BORINI, 2006; OLIVEIRA JUNIOR, 2010).

Still in this first topic, Birkinshaw and Hood (1998) propose the term evolution instead of subsidiary development because they admit the possibility of retrogression with regard to the accumulation of recourses in the course of time. In this case, the evolution of the subsidiary implies alterations, positive and/or negative ones, in the activities of the locally hosted value chain (ZANDER; ZANDER, 1997). According to Birkinshaw (1998), these alterations can be illustrated by means of the three dimensions: location, externalisation and integration. The dimension location concerns the activities of the value chain of the subsidiary which are carried out in a determined country (JARILLO; MARTINEZ, 1991). The dimension externalisation is related to the degree in which the activities are carried out by the subsidiary (PETERSEN; WELCH; BENITO, 2010). And, finally, the dimension integration refers to the degree of coordination of the activities which are developed by a subsidiary in relation to the other subsidiaries of the multinational (PORTER, 1986).

Taking this discernment into consideration, the authors suggest that the evolution of the subsidiary can be represented by the phases of viability and sustainability. Whereas the first encompasses the beginning of the subsidiary until the achievement of a satisfactory performance, the second is mainly represented by the obtaining of a world mandate. Blomkvist, Kappen and Zander (2010) refine this proposal by suggesting that the evolution of the subsidiary can even transcend roles which are traditionally associated with the phase of sustainability, such as the world mandates in order to develop technological capabilities which are totally new for the multinational. In this conception, the evolution of the subsidiary resembles an interminable process, open to multiple paths which are tread on networks which inside or outside the multinational (WANG; LIU; LI, 2009).

In the second topic, the emphasis moves from the evolution process of the subsidiary to the causal factors of this process (RUGMAN; VERBEKE, 2001). According to Paterson and Brock (2002) and Oliveira Junior, Borini and Guevara (2009), the studies converge towards the idea that the evolution of the subsidiary is guided by three groups of causal factors: subsidiary, parent company and context. In the case of the subsidiary, we draw attention to the entrepreneurialism of the managers (OLIVEIRA JUNIOR; BORINI; GUEVARA, 2009), to the autonomy of the affiliate (ROCHA; BORINI; SPERS, 2009; AMBOS; ANDERSSON; BIRKINSHAW, 2010; OLIVEIRA JUNIOR; BORINI, 2012), to local initiative (OLIVEIRA JUNIOR; BORINI; GUEVARA, 2009; BLOMKVIST; KAPPEN; ZANDER, 2010) and to the credibility of the management body of the subsidiary (RUGMAN; VERBEKE, 2001). Arregle, Beamish and Hebert (2009) insist on pointing out that, in an isolated way, the most important factor relative to the subsidiary is the chronological description of the performance of this actor in the multinational.

The factors, which are linked to the parent company, concern the ethnocentrism of this actor (RUGMAN; VERBEKE, 2001), the allocation of critical resources (BIRKINSHAW, 1998), control capability, (HOLM; JOHANSON; THILLENUS, 1995), resource availability among others (YAMIN; TSAI; HOLM, 2011),.

Finally, we have the factors that are linked to the local context, which can be represented, for example, by legal or infrastructural aspects (BIRKINSHAW; HOOD, 1997; RODRIGUES; CHILD, 2012), political environment (FEINBERG; GUPTA, 2009; SUN, MELLAHI; TUN, 2010; FERNANDES, BANDEIRA-DE-MELLO; ZANNI, 2012) and the existence of actors – buyers and/or suppliers – that are technologically capacitated (ANDERSSON; FORSGREN; HOLM, 2002; FIGUEIREDO; BRITO, 2011). Due to market alterations and production factors (BELDERBOS; ZOU, 2007), some authors have still drawn attention to aspects that are linked to the regional context in which the subsidiary operates (ARREGLE; BEAMISH; HEBERT, 2009; TORRE; ESPERANÇA; MARTINEZ, 2011) and/or to international markets (BELDERBOS; ZOU, 2007).

### **Dynamic vs. static focus in the evolution of the multinational subsidiary**

On the basis of the review of the studies on the multinational subsidiary, in particular on the evolution of this actor, we suggest the existence of a divergence between those who prefer to analyse the evolution of the subsidiary and those who emphasise the causal factors of this process. Whereas the first adopt an eminently dynamic focus, the second privilege a static focus, from the theoretical viewpoint as well as from the empirical one.

In a more detailed way, the studies which focus on the evolution of the subsidiary conceive this process as a sequence of interconnected events in the course of time (FORTANIER; VAN TULDER, 2009). This means that the establishment of the subsidiary which comprises the choice of the mode and of the activities of the value chain, which will be hosted by the affiliate in a determined international market, exerts an influence on the alterations which follow this decision (ARAUJO; REZENDE, 2003; ARREGLE, BEAMISH; HEBERT, 2009). In the same way, initial events modify the content and the temporal position of late events in the evolution of the subsidiary (GAO; PAN, 2012).

On their turn, the studies, which privilege the causal factors of the evolution of the subsidiary, subscribe, even if implicitly, presuppositions of static nature with respect to the actuation of these factors. For example, Dorrenbacher and Gammelgaard (2006) insist in pointing to the fact that the evolution of the subsidiary cannot be explained on the basis of the presupposition that the causal factors act in an isolated and punctual way. According to them, the subsidiary is the result of the interaction of causal factors which are related to the subsidiary, to the parent company and to the context in distinct temporal horizons. They illustrate this position by exemplifying, in a posterior study, that the loss of the mandate of the subsidiaries, which are the object of the study, was influenced by the interaction of multiple factors (DORRENBACHER; GAMMELGAARD, 2010). In a similar sense, Birkinshaw and Hood (1998) understand that the presupposition that the causal factors act in a homogeneous way in the course of the evolution of the subsidiary is fallible. The authors allege that causal factors, which are linked to the parent company and to the local context, have a greater impact on the beginning of the evolution of the subsidiary. Nachum and Sangyoung (2011) share this opinion to the extent that they suggest that the causal factors of the evolution of the subsidiary fluctuate in the course of this process, sometimes at random (DOOLEY; VAN DE VEN, 1999).

In order to contribute to the minimisation of such divergence, we started from the principle that the evolution of the subsidiary and the groups of causal factors of this process can be conceived and operationalised in a dynamic way. Therefore we relied on the presupposition that the interaction between process and causal factors is not necessarily linear (CHILES; MEYER; HENCH, 2004). According to Anderson (1999), nonlinearity

means that a change, even if it is lowermost, in a causal factor has the potential to drastically alter a determined trajectory towards surprisingly new ways. Leviw and Volberda (1999) point to the difficulty to determine fixed patterns of interaction between process and causal factors as characteristic of nonlinearity. On their turn, Chiles, Meyer and Hensch (2004) suggest that the nonlinear behaviour of process and causal factors implies evolutionary indeterminism and heterogeneity of actuation of causal factors.

On the basis of this presupposition, we succeeded in accommodating the idea that the causal factors of the evolution of the subsidiary can act in an isolated or combined way (DORRENBACHER; GAMMELGAARD, 2006, 2010). Such actuation, on its turn, can be susceptible of variations in the course of the evolution of the subsidiary (BIRKINSHAW; HOOD, 1998).

### **Methodology**

The method we use in the present study is the case study of qualitative nature and of longitudinal perspective (YIN, 2004; LANGLEY; SMALLMAN; TSOUKAS; VAN DE VEN, 2013). We chose this method according to the objective of the article (DUBOIS; GIBBERT, 2010), which implies the analysis of alterations of events in the course of time (VAN DE VEN; POOLE, 2005) and the relation of such alterations with their causal factors (GEORGE; BENNETT, 2005).

On the basis of the definition of the method, we began the process of data collection with a selection of the case to be investigated, which was guided by three criteria. The first concerns the origin of the multinational. Aligned to Luo's and Tung's recommendation (2007), we chose a multinational the origin of which is a country that is considered as developed, the United States, in order to avoid that the data analysis be influenced by the existence of contexts which are different from those one usually finds in the studies which were already carried out on the topic (PATERSON; BROCK, 2002), that is: multinational firms with origin in the United States or in Europe which operate in developed countries (BIRKINSHAW; HOOD, 1998) and, to a minor degree, in emerging countries (OLIVEIRA JUNIOR; BORINI; GUEVARA, 2009; JONSSON; FOSS, 2011). The second refers to the time in which the subsidiary we analysed is present on the Brazilian market, 93 years, counted until the date of the data collection, because the analysis of the evolution of subsidiaries requires a time horizon relatively "long" (BENITO; PETERSEN; WELCH, 1999). Finally, the third criterion concerns the existence and availability of access to primary data and, mainly, to secondary ones (JORMANAINEN & KOVESHNIKOV, 2012). With view to such criteria, we selected the evolution of the IBM Brazilian affiliate (IBM-Brasil).

We began the data collection with secondary data, since the temporal horizon of IBM-Brasil we considered in our study is of almost one century, which, according to Benito, Petersen and Welch (2009), makes it similar to the studies of entrepreneurial history. Thus as a starting point, we took Espina's (1993) and Beloch's and Fagundes' (1997) studies and we collected innumerable documents IBM-Brasil made available, such as publications of advertising and commemorative character, data which are available on the site of the IBM group and mainly the file of the Brazilian subsidiary. These data were complemented with the conducting of nine interviews with managers, directors and vice-presidents of the Brazilian affiliate; each of them has been acting in IBM-Brasil for approximately 25 years. We conducted the interviews between November 2008 and February 2009 in São Paulo.

They were all recorded and transcribed later, thus they generated a document of approximately 120 pages, in double spacing.

For the conducting of the interviews we elaborated an interview script which was composed of two parts. In the first, each interviewee was asked to present his view about the history of IBM-Brasil by privileging the critical events of this process. We considered as critical events the episodes, which, from the interviewees' viewpoint, had an important effect on the evolution of the Brazilian subsidiary (HALINEN; SALMI; HAVILA, 1999). Still in this first part of the script, we also sought to stimulate the interviewees to identify and analyse the different roles the Brazilian subsidiary assumed in the course of its history (BARTLETT; GHOSHAL, 1986). In the second part of the script, we sought to identify the causal factors of the events the interviewees considered critical with regard to the evolution of IBM-Brasil (RUGMAN; VERBEKE, 2001; OLIVEIRA JUNIOR; BORINI; GUEVARA, 2009).

With these data, we carried out the triangulation of the data on three levels (YIN, 2004). Initially, we agglutinated all the secondary data in one document and we effectuated a chronological ordering, emphasising the main events which could eventually characterise the evolution of IBM on the Brazilian market and we pointed out the causal factors of these events. After that, we used the same process with the primary data by grouping the interviews we conducted in one document. Once more we emphasised the chronology of the events we considered relevant and their causal factors, this time from the interviewees' viewpoint. The divergences we found were solved on the basis of new contacts with the interviewees via telephone or e-mail. Finally we triangulated the secondary data vis-à-vis primary data, which implies to go back to the original documents in order to check data and to remove the divergences we found.

In the following step of the data analysis, we elaborated a first draft of the case which agglutinated all the secondary and primary data. In this first document, we sought, if even in an incipient way, to order and to list the events we considered critical in the evolution of IBM-Brasil (HALINEN; SALMI; HAVILA, 1999) with the intention to facilitate the comprehension of the connection between them (GEORGE; BENNETT, 2005).

After that, we sought to theoretically frame these events. In the case of the present article, this framing was marked by the notion Birkinshaw (1998) proposed and more recently it was used again by Petersen, Welch and Benito (2010), that alterations in the value chain of the subsidiary in terms of externalisation, location and integration of activities illustrate the evolution of multinational subsidiaries. Thus having such dimensions as parameters, we theoretically framed the events we selected initially in an inductive way. The result indicated the permanence of seventeen events, which turned to represent the evolution of IBM on the Brazilian market.

The next step of the data analysis was to rewrite the case again having these events as a reference. In this moment we sought to identify the possible causal factors of the seventeen events. Therefore we used induction and deduction simultaneously (EISENHARDT, 1989). On the one hand, we generated a list of causal factors which had been identified in the empirical data. On the other hand, we elaborated a second list of causal factors on the basis of Birkinshaw's (1998), Rugman's and Verbeke's (2001), Paterson's and Brock's (2002) and Oliveira Junior's, Borini's and Guevara's (2009) suggestions, which were categorised into three groups (RUGMAN; VERBEKE, 2001; PATERSON; BROCK, 2002): subsidiary, parent company and context. With these two lists, we effectuated a

correspondence between the causal factors which were indicated inductively and the three groups of causal factors which were pointed out deductively. This correspondence allowed us to frame the causal factors of the evolution of the IBM subsidiary on the Brazilian market in these groups.

The last step of the data analysis was to carry out a comparative analysis of the events and causal factors with the intention to identify how the causal factors act in the course of the evolution of the Brazilian subsidiary (LANGLEY; SMALLMAN; TSOUKAS; VAN DE VEN, 2013). Therefore, we used diverse tools Miles and Huberman (1994) propose. By examining the interaction between process and causal factors from diverse angles, we succeeded in building a synthesis frame, which allowed us to visualise the dynamics of the causal factors in the evolution of the subsidiary we had selected.

### **The evolution of the Brazilian IBM subsidiary**

IBM, still under the name of CTR (Computing Tabulating Record), began the operations in Brazil in 1917, in Rio de Janeiro, on the initiative of a Brazilian entrepreneur. Two groups of causal factors explain this entry. The contextual factors are represented by Brazil's economic and political conditions, since there was a framework which was favourable to the entry of foreign firms into Brazil. What was more important is that the company noticed a specific business opportunity, which was related to the carrying out of the demographic census of the year 1920. In the case of the factors which were linked to the parent company, we believe that, at that time, the firm was inclined to expand its international operations. In this case, the proposal of a representation in Brazil, which was presented by a Brazilian entrepreneur, who had already previous contacts with the president of CTR, made the entry of the firm into the Brazilian market viable.

The second event was the opening of a subsidiary in São Paulo and the beginning of the production activities in Brazil. Specifically it was the beginning of the local production of pieces and inputs for the products IBM-Brasil commercialised and the portfolio of products, which were commercialized in Brazil, became wider. This second event is basically explained by contextual factors which are related to the Brazilian market and represented by the significant increase in the demand for products and services of the Brazilian subsidiary.

The third event refers to the beginning of the offer of regular courses for representatives of technical services. The complexity of the machines IBM-Brazil commercialised implied a considerable technical knowledge for the support for use and maintenance, which, due to the absence of qualified workforce, required the training of local technicians. These courses represented a first attempt of local development of engineers and technicians to attend to the buyers of IBM-Brasil and the transfer of know-how to these individuals. This event can be explained by factors which are related to the Brazilian context and to the parent company. With respect to the first, there was still a high demand for the products and the services the Brazilian subsidiary offered. About the second factor, we have the strong expansionist politics the parent company adopted at a world class level.

The fourth event is the acquisition, in 1949, of the Brazilian operations, which concluded the representation in Brazil that way. The local acquisition can be explained by factors which are linked to the parent company, more specifically, by the decision of the firm to create the IBM World Trade Corporation in order to manage its international businesses.

This meant to expand the business basis in diverse countries and to seek more integration between the subsidiaries 100% on their own in terms of control of assets.

The fifth event is the montage, from 1961 on, of the first electronic computers in a factory located in Rio de Janeiro. For the Brazilian subsidiary this represented the verticalisation of the activities which were carried out locally and therefore it diminished its dependence on importations. Factors, which are linked to the subsidiary and to the context, explain this decision. With regard to the subsidiary this event was motivated by the continuous broadening of the portfolio of products which were fabricated locally and by the process of technology transfer which involved local suppliers this time. With regard to the contextual factors, the Brazilian politico-economic framework presented propitious conditions for this decision. Especially in President Juscelino Kubitschek's government, there was an atmosphere that was favourable to the establishment and to the development of multinationals in Brazil. In the case of the informatics industry there was, in October 1959, the signature of a decree which defined rules for the data processing centres in Brazil, represented by the set of electronic computers.

The sixth event concerns the exportation of products that are fabricated by the Brazilian subsidiary which, when it completed fifty years in 1967, registered that 94% of its production is destined to exportations. Factors which were linked to the context and to the parent company explain this event. Firstly, at that time, the directives of the military government promoted the exportations of industrialised products, which, of course, was a stimulus for the multinational subsidiaries, which were established in Brazil, to augment the intra-firm transactions. Secondly, the exportations of IBM-Brasil were considered, within the global planning of the parent company, a platform of production and exportation of a product portfolio to the other subsidiaries.

The seventh event, which is considered as part of the evolution of IBM-Brasil, was the construction of a new factory in Brazil, in a municipality near Campinas, in the State of São Paulo. This factory altered the value chain of the Brazilian subsidiary by deepening the degree of verticalisation of its activities by means of the production of computer components. This alteration was stimulated by the decision of the parent company which, at that time, defined similar investments on markets that were considered important, the Brazilian market being one of them.

The eighth event was the formation of a joint venture, in 1986, with a national firm with the objective to provide services of information technology on the Brazilian market, thus absorbing the ten centres of data services which IBM-Brasil possessed in Brazil at that moment. This arrangement was connected with contextual factors that were represented by the regulation which turned to have an incidence on the informatics industry.

The ninth event also refers to the formation of a joint venture, now in 1991, for the distribution and sale of services, specifically IBM 5080 and the work station RISC 6000. In this case, IBM-Brasil turned to hold 49% of the control. Like in the anterior event, contextual factors, which were related to the regulation of the informatics industry, explain the decision to externalise new activities of the value chain.

In the same year, 1991, we have the tenth event; a joint venture was formed with a national firm, this time with the intention to operate in the segment of microcomputers, PS/2 model, by means of the production of these equipments. The explanation of this event is also related to the regulation of the informatics industry.

The eleventh event concerns the significant change in the products and services which are provided by IBM-Brasil. Specifically, it meant to focus the service providing of information technology, thus causing the reduction of the activities of computer production. Denominated Market Repositioning, this event can be explained by factors which are linked to the parent company, which, between 1992 and 1993, registered an important market loss and a profit drop, that led to the search for a reorientation in terms of products and markets.

The two following events refer to the ending of two of the joint ventures, which had been formed before: production of microcomputers (event 12) and providing services of information technology (event 13). Both events are explained by the contextual factors to the extent that, in 1992, it was the end of the regulation, which had created the joint ventures formerly.

The fourteenth event is represented by the outsourcing of the manufacturing activities on the Brazilian market. IBM-Brasil transferred the responsibility for the fabrication of its equipments to Solectron, a world class company which is present in Brazil and is focused on montage of servers for diverse informatics firms; with this event it stopped having a factory of its own in Brazil. This decision obeyed the directives of the parent company, which, at that time, deepened the market repositioning which had been initiated before. This meant that the parent company turned to dedicate itself exclusively to provide information technology services.

The fifteenth event is the formation of a joint venture with the FIAT group. Denominated GVS – Global Value Solutions – the objective of the joint venture was to provide services of information technology to the FIAT group and to other firms in general. This decision was due to the initiative of the Italian subsidiary of IBM to develop a new business model with the FIAT group. Due to the importance and to the strategic nature of such initiative, the replication to other countries IBM and FIAT considered important, such as the Brazilian market, occurred later.

The sixteenth event concerns the establishment, in 2006, of a centre of technological development on the Brazilian market, the objective of which was to accelerate the innovation and the adoption of open technological patterns. They planned this centre in order to help firms, which are linked to IBM, to develop, test and implement technological solutions that are based on non-proprietary technological patterns, such as LINUX and this centre complemented the 25 innovation centres, which were in charge of other subsidiaries of the firm and it was integrated into them. This event is explained by contextual factors and by factors which are linked to the parent company. Firstly, the economic stability which was achieved in the 1990s and the economic growth Brazil has presented since then weighed favourably in the decision of the parent company to establish a technological centre in Brazil. Besides this, it is convenient to emphasise the role of the parent company to the extent that it implemented the strategy to transform IBM into a world class integrated firm; it reinforced its presence on the emerging markets that way.

Finally the last event we consider here is represented by the fact that the Brazilian subsidiary had turned to be a service provider of information technology for buyers that are located in other countries and for the sister-subsidiaries. Three groups of factors (subsidiary, context and parent company) are responsible for this event. With regard to the subsidiary, we have the initiative of IBM-Brasil to position itself as a service provider of information technology for the external market. With respect to the contextual factors, the

outstanding elements are the technological context the advances of which allowed new forms of remote service providing and the world's and Brazil's economic framework, favourable to a larger commercial integration. With respect to the parent company, there was a strategy of this actor to integrate the diverse subsidiaries at a global level and with this, to reinforce its presence in emerging countries.

**Event, dimensions and causal factors in the evolution of the Brazilian IBM subsidiary**

In Frame 1, we list the 17 events of the evolution of the Brazilian IBM subsidiary, the dimensions of the alterations of the value chain and the respective causal factors.

**Frame 1 – Events, dimensions and causal factors**

Event	Year	Activity	Dimensions			Causal Factors		
			Location	Externalisation	Integration	Subsidiary	Context	Parent company
1) Entry via representation	1917							
2) Beginning of industrial activities	1931	Production						
3) Offer of regular courses	1934-6	Services						
4) Acquisition of the local operations	1949	Production						
5) Computer montage	1961	Production						
6) Exportation from Brazil	1967	Sales						
7) Construction of a new factory	1971	Production						
8) Joint venture: service providing	1986	Services						
9) Joint ventures: distribution and equipment sale	1991	Sales						
10) Joint venture: microcomputer production	1991	Production						
11) Market Repositioning	1992-3	Marketing						
12) Ending of the joint venture: microcomputer production	1995	Production						
13) Ending of the joint venture: service providing	1998	Services						
14) Manufacturing outsourcing	2000	Production						
15) Joint venture: service providing of information technology	2001-2	Services						
16) Technological development centre	2006	P&D						
17) Service exportation	2006	Sales						

**Frame 1 – Events, dimensions and causal factors**

Source: Authors

Initially one perceives that the facts, which are related to the context, appear in twelve of the seventeen events that characterise the evolution of IBM on the Brazilian market. Then the factors, which are linked to the parent company (ten events) and to the subsidiary (only three events), stand out. Thus we can say that the evolution of IBM-Brasil was affected

more frequently by contextual factors. As Morschett, Schramm-Klein and Swoboda (2011) suggest it these factors mainly refer to institutional, political and economic aspects. It is convenient to remember that IBM operates in an industry which was strongly regulated in the 1970s and 1980s, this is the reason why the prominence of the contextual factors can be justified. It is also important to emphasise that the contextual factors concern not only the local geographical context, which is represented here by the Brazilian market, but also the international one (events sixteen and seventeen). As Belderbos and Zou (2007) and Arregle, Beamish and Hebert (2009) advocate it, the evolution of a determined multinational subsidiary can be affected by factors which emerge in geographical contexts which are distinct from that of the subsidiary. Theoretically, this means that the spatial dimension of the factors, which are linked to the context, must be emphasised in order to encompass multiple geographical contexts, such as the local, the regional and the global ones (DUNNING, 1998). Another important point concerns the factors which are related to the parent company. Present in ten of the seventeen events we analysed, this influence was manifested in two ways: the parent company established directives for the group as a whole (events 11 and 14), thus interfering in its affiliates and the parent company determined alterations in the operations of the Brazilian subsidiary in particular (events 1, 3, 4, 6, 7, 13, 16 and 17). Such kind of action reflects the role of integrative nature Ambos and Mahnke (2010) suggest, to the extent that the parent company tends, by means of its subsidiaries, to optimise the activities of the value chain which are implemented in diverse geographical contexts. In a certain way, this implies a “low” autonomy of the subsidiary (CHANDLER, 1991). The evolution of IBM on the Brazilian market reflects this situation to the extent that it was “strongly” linked to the parent company.

The analysis still reveals that only one event, event fifteen, had the subsidiary as the only cause and, in this case, it refers to the IBM-Brasil subsidiary: IBM-Italia. This point is interesting because it signals that the relationships of IBM-Brasil with other subsidiaries had a “minimal” influence in the course of its evolution process. In a certain way, this opposes the recent researches which have emphasised the role of the inter-subsidiary relationships in the evolution of a determined affiliate (REZENDE; VERSIANI, 2007). It also emphasises that factors, which are related to the subsidiary, be it IBM-Brasil or IBM-Italia, have a less frequent presence in the evolution of the Brazilian subsidiary when we compare them to the factors which are related to the context and to the parent company.

Besides the frequency of the causal factors we can infer from Frame 1 that ten events of the evolution of IBM-Brasil are explained by isolated factors (events 2, 4, 7, 8, 9, 10, 11, 12, 14 e 15), whereas seven events have a combination of factors as cause (events 1, 3, 5, 6, 13, 16 e 17). With regard to this combination, the most common is that which is represented by contextual factors and by the parent company (events 1, 3, 6, 13 e 16). The reasoning which permeates this combination is the following: there were alterations in the Brazilian context which impelled the parent company to make decisions concerning the externalisation, location or integration of activities of the Brazilian subsidiary. In a certain way this denotes an eminently relative position of the parent company with regard to the Brazilian affiliate.

Finally we emphasise the temporal position of the causal factors on the basis of two points. Firstly, as Birkinshaw and Hood (1998) suggest it, factors, which are linked to the parent company, have an important presence at the beginning of the evolution of IBM-Brasil. This distribution can be explained by the subsidiary’s effort to establish the viability of the Brazilian affiliate, even if it is preliminary.

Secondly, we did not observe the presence of the parent company in the intermediate period of the evolution of IBM-Brasil (events 8 a 10). Since this period was marked, according to what we pointed out before, by the strong governmental interference in the Brazilian information industry, IBM had to conform to that institutional pressure. This means that there was an important limitation of the discretionary capacity of the subsidiary as well as of the parent company to modify the value chain in terms of externalisation, location and integration of activities.

**The dynamics of causal factors in the evolution of multinational subsidiaries**

The analysis of the events and of the causal factors in the evolution of the Brazilian IBM subsidiary brings to the surface the dynamics of the groups of causal factors in the evolution of the multinational subsidiary and, that way, it allows us to diminish our ignorance about this research topic (SALGADO, 2011), especially that which derives from the divergence which exists between the way of conceiving or operationalising the evolution of the subsidiary and the causal factors which act in this process (DORRENBACHER; GAMMELGAARD, 2006).

By emphasising the way in which the three groups of causal factors (subsidiary, parent company and context) acted in the evolution of the Brazilian IBM subsidiary, we stress that the actuation of these groups of causal factors is subject to evolutionary effects, (FEINBERG; GUPTA, 2009). With this, we unveil three properties of the dynamics of the causal factors: combination, frequency and temporal position (see Frame 2).

Name	Definition
Combination	Combined actuation of groups of causal factors (subsidiary, parent company and context) in the evolution of the multinational subsidiary
Frequency	Recurrence of the groups of causal factors (subsidiary, parent company and context) in the evolution of the multinational subsidiary
Temporal Position	Moment of the actuation of the groups of causal factors in the evolution of the multinational subsidiary

**Frame 2 – Properties of the dynamics of the causal factors**

Source: Authors

The first property is combination. We define combination as the combined actuation of groups of causal factors (subsidiary, parent company and context) in the evolution of the multinational subsidiary. In this sense, combination concerns the multiple influences of causal factors in a determined evolutionary process (LANDES, 1994). This means that the condition of necessity and sufficiency in explanatory terms is only achieved through the existence of more than one group of causal factors. This proposal, which agrees with Chiles', Meyer's and Hench's position (2004), who defend the complex evolutionary processes such as the evolution of the multinational subsidiary (DORRENBACHER; GAMMELGAARD, 2010), requires complex explanations, such as, for example, that

which involves not only the isolated actuation, but also the combined action of causal factors (LANDES, 1994). As the evolution of the Brazilian IBM affiliate illustrates it, there was the combination of two groups of causal factors in six events and the combination of three groups of causal factors in one event, the most common combination was that of the groups of causal factors which are linked to the context and to the parent company. The existence of the combination of groups of causal factors in the evolution of the subsidiary we selected served as a basis for the formulation of the first proposition of this article:

P1 – The actuation of the groups of causal factors (subsidiary, parent company and context) in the evolution of the multinational subsidiary is subject to combination.

Whereas the first property of the dynamics of the causal factors in the evolution of the multinational subsidiary, combination, refers to the combined actuation of groups of causal factors, the second property, here denominated frequency, is defined by the recurrence of the groups of causal factors (subsidiary, parent company and context) in this process (KLARNER; RAISCH, 2013). We suggest that frequency can be distinct, which means to point out that some groups of factors eventually are more present than others in the evolution of the subsidiary (FORTANIER; VAN TULDER, 2009). It is convenient to emphasise that frequency refers to isolated groups of causal factors (for example, a parent company) or combined groups (for example, parent company and subsidiary). In the case of the evolution of IBM on the Brazilian market, the context was the group of causal factors, which was more present, followed by the combination of the causal factors which is related to the context and to the parent company. The frequency of actuation of the groups of causal factors in the evolution of the subsidiary we investigated originated the second proposition of this article:

P2 – The actuation of the groups of causal factors (subsidiary, parent company and context) in the evolution of the multinational subsidiary is subject to frequency.

The third and last property of the dynamics of the causal factors in the evolution of the multinational subsidiary has to do with temporality (ABBOTT, 2000). Denominated temporal position, this property refers to the moment of the actuation of the groups of causal factors in the evolution of the subsidiary. Thus it represents a complementary property, even if it is independent from the anterior properties, because it signals when the groups of causal factors act in an isolated way or in a combined way and/or when they are more or less frequent in the evolution of the subsidiary (NACHUM; SANGYOUNG, 2011). In the case of the evolution of IBM on the Brazilian market, the combination of causal factors which are related to the context and to the parent company became present in the initial and late events, but not in the intermediate events. The last proposition, which is contained in this article, explicates the temporal position of the causal factors in the evolution of the multinational subsidiary:

P3 – The actuation of the groups of causal factors (subsidiary, parent company and context) in the evolution of the multinational subsidiary is subject to temporal position.

In short, the analysis of the dynamics of the causal factors in the evolution of the multinational subsidiary revealed the existence of three properties: combination, frequency and temporal position. Such findings led us to suggest three propositions which are synthesised in Frame 3; they can eventually be used in future studies.

Property	Proposition
Combination	P1 – The actuation of the groups of causal factors (subsidiary, parent company and context) in the evolution of the multinational subsidiary is subject to combination.
Frequency	P2 – The actuation of the groups of causal factors (subsidiary, parent company and context) in the evolution of the multinational subsidiary is subject to frequency.
Temporal Position	P3 – The actuation of the groups of causal factors (subsidiary, parent company and context) in the evolution of the multinational subsidiary is subject to temporal position.

**Frame 3 – Propositions relative to the properties of the dynamics of the causal factors**

**Source:** Authors

## Conclusion

This starting point of this article was the identification of the existence of a divergence between the way in which one conceives and/or operationalises the evolution of the multinational subsidiary and the causal factors which act in this process. Since the first is conceived in a dynamic way and the second is seen statically, studies were produced which are founded on diametrically opposed presuppositions (DORRENBACHER; GAMMELGAARD, 2010). As a result, the literature of multinational subsidiaries has explained a dynamic phenomenon (evolution of subsidiaries) on the basis of causal factors which are rooted in static principles (DORRENBACHER; GAMMELGAARD, 2006). It is unnecessary to say that, in a certain way, this has compromised our understanding about the evolution of the multinational subsidiary.

In this article, we suggest that an alternative to advance the research in this domain implies the understanding of the dynamics of the causal factors in the evolution of the multinational subsidiary, which means to understand how the causal factors act in this process. On the basis of this suggestion and of the case study of the Brazilian IBM subsidiary, we identified three properties of the dynamics of the causal factors: combination, frequency and temporal position. According to us, these properties allow us to provide a more refined understanding of the evolution of the multinational subsidiary to the extent that we are capable of understanding not only how a determined affiliate evolves in the geographical context in which it was established, but also why it evolved in a determined way (NACHUM; SANGYOUNG, 2011). According to us, the main theoretical contributions of this article reside in these points.

In addition to this, by mapping the evolution of a determined multinational subsidiary during a period of 93 years, we made innumerable decisions of methodological nature, we already detailed in the course of the article, which will be useful as a starting point in future studies. This is important to the extent that an increasing number of authors, such as Estrin, Meyer, Wright and Foliano (2008), have insisted on the carrying out of studies of longitudinal nature as a way of advancing our knowledge about the multinational

subsidiary. Nevertheless our article has limitations which are due to the choices we made in the course of the development of this article. Firstly, limitations that are inherent in the very method remind us of the impossibility of a statistical generalisation of the results (YIN, 2004). Besides this, the subsidiary we focused on belongs to an industry which suffered strong governmental interference in the 1970s and 1980s, which can have contributed, in a certain way, to the prominence of the contextual factors. We cannot forget either that the origin of the multinational can have interfered in the results. If this is plausible, subsidiaries, which belong to multinationals coming from other geographical contexts, can present evolutionary processes reasonably distinct. According to us, this is an interesting point which can be exploited in future studies, especially if we consider the emerging markets. (JONSSON; FOSS, 2011; ROCHA; MELLO; PACHECO; FARIAS 2012).

In the present stage of the research we were not able to relate the three properties of the dynamics of the causal factors (combination, frequency and temporal position) to the very groups of causal factors (subsidiary, parent company and context). For example, is it possible to advance the idea that causal factors, which are related to the parent company, differ from those which are linked to the context in some of these properties? And those related to the subsidiary? This point seems crucial to us as a way of diminishing our ignorance about the evolution of the multinational subsidiary. Therefore we suggest that future researches search for answers to these questions. As a methodological design, we suggest the carrying out of longitudinal studies of quantitative nature. Nevertheless such task is not trivial due to the little availability of secondary data of this nature and of the innumerable, almost insurmountable, obstacles to data collection of this kind of primary data in the Brazilian context.

We also consider that the three properties of the dynamics of the causal factors we revealed here are not exhaustive. There are properties, that are related to evolutionary effects in studies of internationalisation of the firm, which can eventually be used in future researches that are related to the evolution of the multinational subsidiary, such as rhythm (VERMEULEN; BARKEMA, 2002) and velocity (FORTANIER; VAN TULDER, 2009).

Finally the carrying out of comparative case studies of subsidiaries of the same multinational could provide a more refined comprehension of the actuation of the causal factors, mainly those which are related to the parent company and to the subsidiary. We suggest the selection of subsidiaries which are established or acquired in the same geographical context, such as, for example, the regional one.

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## A DINÂMICA DOS FATORES CAUSAIS NA EVOLUÇÃO DA SUBSIDIÁRIA DE MULTINACIONAIS: A IBM NO MERCADO BRASILEIRO

**Resumo:** A revisão da literatura de tipologias e desenvolvimento de subsidiárias de multinacionais aponta para a existência de um descompasso entre a maneira de se conceber e ou operacionalizar a evolução da subsidiária e os grupos de fatores causais que atuam neste processo. Enquanto a evolução é usualmente concebida a partir de um enfoque dinâmico, os grupos de fatores causais são enquadrados estaticamente. Tendo este descompasso como ponto de partida, o objetivo do presente trabalho é analisar a dinâmica dos grupos de fatores causais na evolução de uma subsidiária de multinacionais. Com base no estudo de caso da evolução da subsidiária brasileira da IBM, os resultados indicam que a manifestação dos grupos de fatores de causais é mais complexa do que a retratada pela literatura, estando sujeita a três propriedades: combinação, frequência e posição temporal.

**Palavras-chave:** Subsidiária; Evolução; Fatores causais; Multinacionais

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