

INNOVATION INITIATIVES BY MNE SUBSIDIARIES: AN INTEGRATED RESEARCH FRAMEWORK

The Issues

Following Bartlett & Ghoshal (1989), Hedlund (1986), Nohria & Ghoshal (1997), Kogut & Zander (1995) and Caraça & Simões (1995), the multinational enterprise (MNE) is increasingly envisaged as a repository of knowledge, organised as a differentiated network. This means that the traditional hierarchical perspective of the MNE is no longer the most appropriate to respond today's challenges (Palmisano, 2006). To thrive in a globalised World where knowledge assets are increasingly relevant and where open innovation (Chesbrough, 2006) is gaining ground, the traditional 'command-and-control' approach does not work. One of the main advantages of MNEs *vis-a-vis* competitors is exactly their geographical dispersion. Being present at different locations, it may identify, access, meld, and share specific, difficult to imitate, knowledge assets (Bartlett & Ghoshal, 1989; Birkinshaw & Hood, 2001; Doz, Santos & Williamson, 2001). This requires a new perspective of subsidiary management. Subsidiaries can no longer be envisaged as 'passive pawns', just complying with headquarters commands. To assimilate technological and market knowledge from the environments where they are located, subsidiaries should enjoy some autonomy and behave as active furtherers of global MNE competitiveness. This does not mean, though, that all subsidiaries will behave this way: of course, there will still be mostly passive subsidiaries. It means, however, that subsidiaries need to be seen at a different light.

This paper comes in that vein. Its main purpose is to design an integrated framework for studying innovative initiatives taken by MNE subsidiaries. Such framework is, at a later stage, expected to define the charter for empirical research aimed at: (1) increasing our understanding of subsidiary behaviour; (2) contributing to define the key junctures in the process of emergence, implementation and replication of subsidiary-driven innovation initiatives; and (3) to draw policy implications, for both company policies, namely at subsidiary level, and national policies aimed at attracting and upgrading the value added of foreign investments.

Drawing on the research on subsidiary initiatives (Birkinshaw, 1997; Birkinshaw, Hood & Jonsson, 1998; Delany, 1998; Johnson & Medcof, 2002; Lu, Chen & Lee, 2007), on subsidiary roles (Bartlett & Ghoshal, 1989, Simões, 1992; Taggart, 1997a and 1997b; Kuemmerle, 1999), and on MNE knowledge creation and sharing (Bartlett & Ghoshal, 1989; Gupta & Govindarajan, 1991, 1994 and 2000; Caraça & Simões, 1995; Andersson, Forsgren & Holm, 2002; Cantwell & Mudambi, 2005;

Phene & Almeida, 2008), a set of research propositions and an integrated analytical framework will be developed.

The remainder of this paper will be organised in four sections. A preliminary review of the literature is developed in the following section. Then, key definitions and research propositions to study subsidiary initiative processes are derived. On the basis of these, an integrated analytical framework is presented. The last section provides the guidelines for the empirical work ahead.

Literature review

The above mentioned new light shed on subsidiaries is well expressed in a body of literature that has emerged in the late 1980s, and gained speed during the last decade. Its main trait is the adoption of the subsidiary perspective, instead of the headquarters one. In other words, the focus is put on the subsidiary, and this becomes the unit of analysis. Contrary to some literature of the 1970s, the approach does not envisage subsidiaries against headquarters. It provides instead a look at MNEs networks from the subsidiary standpoint. Three inter-related streams may be identified in such literature. They may be generally labelled as: (1) subsidiary roles, (2) subsidiary autonomy and initiative; and (3) MNE knowledge creation and sharing. Let's briefly highlight their main features.

Subsidiary Roles

The literature on subsidiary roles has a long tradition, being originated in Canada namely with the pioneering study by White & Poynter (1984). Relevant contributions were also made by Bartlett & Ghoshal (1989), Jarillo & Martinez (1990), Gupta & Govindarajan (1991), Simões (1992), Taggart (1998a and 1998b), Pearce and Papanastassiou (1999) and Kuemmerle (1999). The intended purpose is to combine the diversity of the characteristics and activities performed by different subsidiaries with the identification of common traits, enabling the definition of role typologies.

Some of this work has become classic. The typology of White & Poynter (1984) – marketing satellite, miniature replica, rationalised subsidiary, product specialist, and strategic independent – defined a path for further analyses of these issues. Bartlett & Ghoshal (1989) introduced a new approach, by relating subsidiaries' capabilities and resources to host country's strategic relevance. This underlines the importance of local context for defining subsidiary roles: although subsidiary resources do matter, the key roles are assigned to subsidiaries in strategic locations. Jarillo & Martinez (1990) defined three subsidiary roles (receptive, active, and autonomous) by relating subsidiary integration in the MNE and their location, that is, the adaptative commitment to host country competitive requirements; their contribution is particularly interesting for us, since it has been developed on the basis of empirical research carried out in Spain. A double dimension approach has also been followed by Taggart (1998b). However, he has not taken location into account, but rather two features of subsidiary integration in the MNE group (autonomy and procedural justice). The contributions by Gupta & Govindarajan (1991 and 1994) and Kuemmerle (1999) are chiefly concerned with subsidiary roles in knowledge flows. The contrast between home-base-exploiting (HBE) and home-base-augmenting

(HBA) subsidiaries, drawn by Kuemmerle (1999), may be of relevance for our purposes. He suggests that some subsidiaries are geared towards exploiting knowledge and competences developed at the MNE home country, while others are concerned with knowledge creation aimed at enhancing MNE's competences. His analysis has, however, two drawbacks. First, it is focussed on R&D units. Second, the label of HBA or HBE was assigned with regard to the MNE's intention at the time of establishment of the subsidiary (R&D laboratory).

The assignment criterion used by Kuemmerle (1999) overlooks the possibility of role changing. In reality, however, subsidiary roles are not static, being assigned and 'imprinted' when the subsidiary has been created or acquired, and lasting forever and ever. On the contrary, they may be dynamic, evolving as time goes by and the subsidiary develops (or loses) specific resources and/or the relevance of country investment conditions change (Bartlett & Ghoshal, 1999). Drawing on Kuemmerle (1999), Cantwell & Mudambi (2005) provided a more nuanced view, with some evolutionary traits; in particular, they "found that the level of subsidiary R&D depends on MNE group-level and subsidiary-level characteristics as well as locational factors" (Cantwell & Mudambi, 2005: 1109).

A stream of literature has underlined the evolutionary nature of subsidiaries' roles (Simões, 1992 and 2004; Taggart, 1998a and 1998b; Pearce & Tavares, 2002; Egelhoff, Gorman & McCormick, 1998; Delaney, 1998; Tavares, 2003; Holm, Holmstrom & Sharma, 2005; Simões & Nevado, 2000). It is important to remark that such an evolution is not necessarily positive: it may lead to a declining relevance, and even to the divestiture or closure of the subsidiary (Simões, 2004 and 2005). Increased subsidiary relevance seems to be associated with increasing resources and capabilities (Bartlett & Ghoshal, 1989), and, more specifically, with features such as managerial initiative (Birkinshaw, 1997; Delany, 1998; Birkinshaw & Hood, 2001), involvement in local networks and clusters (Foss & Pedersen, 2002; Andersson, Forsgren & Holm, 2002; Holm, Holmstrom & Sharma, 2005; Birkinshaw & Hood, 2000), autonomy (Taggart, 1997b; Simões, Biscaya & Nevado, 2002; and, with some qualifications, Foss & Pedersen [2002] and Forsgren & Pedersen [1998]), and public policy (Tavares, 2002).

A related line of research has concerned the study of Centers of Excellence (CoEs). The CoE project, involving researchers from the Nordic countries, Austria, Canada, Germany, Italy, Portugal, and the UK, has been one of the first initiatives in the field (Holm & Pedersen, 2000). A CoE may be defined as "an organizational unit that embodies a set of capabilities that has been explicitly recognized by the firm as an important source of value creation, with the intention that these capabilities be leveraged by and/or disseminated to other parts of the firm" (Frost, Birkinshaw & Ensign, 2002: 997). A CoE may be considered as a kind of subsidiary role, although the scope of a CoE is often narrower than the scope of activities of a subsidiary; in other words, a single subsidiary may encompass several CoEs (Pearce & Tavares, 2002; Frost, Birkinshaw & Ensign, 2002, Simões & Nevado, 2000). The literature indicates that a CoE should combine three features: (1) strong competencies in one or several areas; (2) such competencies should be made available to other members of the MNE network; and (3) a recognition of those competences by the headquarters or other parts of the organisation (Simões & Nevado, 2000).

CoEs are in line with a not-so-hierarchical view of the MNE. More specifically, assigning CoE roles assumes that the MNE may be envisaged as a differentiated network, where subsidiaries have different assets and capabilities that should be used to create value for the whole group. According to Frost, Birkinshaw & Ensign (2002), there are two main perspectives of CoE mandates. One envisages the CoE as a result of an evolutionary process of capability development by the subsidiary to creatively combine its double embeddedness: in the local environment and in the corporate network (Forsgren & Pedersen, 1998; Fratocchi & Holm, 1998, Holm & Pedersen, 2000; Andersson, Forsgren & Holm, 2001; Holm, Holmstrom & Sharma, 2005). The second perspective sees the CoE as a form of best practice that is disseminated throughout the MNE (Moore & Birkinshaw, 1998).

Furthermore, there are CoEs that are a result of acquisitions. In this case, there is often no evolutionary process of gaining ‘internal’ recognition. Rather, the process of recognition of CoEs in acquired subsidiaries seems to be faster, with a blend of headquarters-induced and subsidiary-driven moves (Simões & Nevado, 2000). This means that there is a diversity of aspects to be taken into account for understanding how CoE mandates are gained, and lost (Birkinshaw, 1996). It seems, however, undeniable, that some kind of subsidiary initiative, often in connection with host countries specific challenges and opportunities, plays an important role in the process.

These comments lead to the second stream of literature mentioned above: subsidiary autonomy and initiative. This will be dealt with next.

Subsidiary Autonomy and Initiative

Though related, the concepts of autonomy and initiative are distinct. Autonomy may be defined as the room of manoeuvre that a subsidiary has in the context of the MNE group. However, having such a room does not mean that it is, in fact, turned into act. That is, autonomy may not be fully exploited due to insufficient spirit of entrepreneurship and initiative. Conversely, initiative may lead to increased autonomy, insofar the subsidiary develops specific resources and capabilities on which the MNE may draw on. Autonomy may be granted. But it may also be earned as an outcome of subsidiary’s successful initiatives.

Earlier research envisaged subsidiary autonomy as the other face of headquarters control (Garnier, 1982; Picard, 1977; Van den Bulcke & Halsberghe, 1984). Lower control was a synonymous of higher autonomy, and vice-versa. Autonomy was envisaged as being *prima facie* “granted” by headquarters (Garnier, 1982:895), and assessed at functional level (Picard, 1977; Van den Bulcke & Halsberghe, 1984; Gates & Egelhoff, 1986).

The development of a new perspective on MNE management mentioned above also led to a different understanding of the autonomy issue. This is no longer envisaged as just granted, but may also, as mentioned above, emerge from subsidiary commitment and action. Headquarters cannot control everything: there are ‘holes’ where subsidiaries may identify and exploit opportunities. Furthermore, in a World where knowledge is increasingly dispersed, it may be beneficial to stimulate subsidiary autonomy to tap into specific knowledge sources (Hedlund, 1986; Caraça

& Simões, 1995; Birkinshaw & Hood, 2000; Doz, Santos & Williamson, 2001; Foss & Pedersen, 2002). The issue is no longer autonomy versus control, but rather autonomy as an instrument for enhancing interdependence: as Forsgren & Pedersen (1998) wrote with regard to CoEs, too low autonomy leads to an insufficient sensitiveness to local opportunities, while too much autonomy may turn the subsidiary vulnerable to divestment. Interdependence may also contribute to an increased use of several forms of control, as Ambos & Schlegelmilch (2007) found in the case of R&D subsidiaries of German MNEs. Although Foss & Pedersen (2002) did not get empirical support for their hypothesis that autonomy enhances intra-group knowledge sharing, there appears to be a consensus in the literature that autonomy is relevant for knowledge sourcing and, therefore, for sharing knowledge with peer subsidiaries. This has been empirically confirmed by Zhao & Luo (2005) in their study on foreign subsidiaries in China.

Autonomy may also be related to embeddedness. Andersson & Forsgren (1996) found a negative relationship between total (corporate plus external) embeddedness and subsidiary managers' perception of control. Harzing (1999) arrived to interesting findings, namely that autonomy is associated to MNE's country of origin and also to the input-output relationships with the MNE group, output-dependent subsidiaries being more autonomous. Mudambi & Pedersen (2007) discuss agency and resource dependence theories as complementary explanations for subsidiary power. The empirical research by Taggart & Hood (1999) indicates that autonomy levels are strongly influenced by subsidiary's R&D complexity and export propensity. They found that MNE characteristics also play a role: "the faster growing and more globally integrated the [MNE], the less may be the autonomy" of the subsidiary (Taggart & Hood, 1999: 234). With regard to Portugal, the study carried out by Simões, Biscaya & Nevado (2002) presented a framework for analysing subsidiary autonomy, envisaging it as contingent on three main groups of factors: subsidiary competences, corporate embeddedness, and local embeddedness. Their findings suggest that all three groups of factors are relevant. A more in-depth analysis shows that subsidiary autonomy is positively influenced by subsidiary marketing capabilities, local sourcing and cooperation with local scientific and technological organisations, while it is curtailed by frequent top management rotation.

Julian Birkinshaw has been a pioneer in the study of subsidiary initiative. His doctoral dissertation *Entrepreneurship in multinational corporations* (Birkinshaw, 1995) has shown that there is room for entrepreneurship in such context, and that the entrepreneurial drive is translated into subsidiary initiative. Drawing on Hedlund (1984)'s ideas on heterarchical MNEs, he argues that entrepreneurship is essential for the MNE to venture into new fields, and that subsidiaries may play a key role in that process. Since "no one has a monopoly on great ideas", it is beneficial for the firm as a whole to "unleash innovation in foreign subsidiaries" (Birkinshaw & Hood, 2001: 131). According to Birkinshaw (1997: 207), an "initiative [is] a discrete, proactive undertaking that advances a new way for the corporation to use or expand the resources". Johnson & Medcof (2002) have also addressed this issue, but just from a theoretical perspective. Although being different concepts, subsidiary initiative has some resemblance to subsidiary self-determination, used by Mudambi, Mudambi & Navarra (2007) to assess the determinants of global innovation in MNEs.

Envisaging the subsidiary at the crossroads of three markets (local; internal, or intra-MNE; and global), Birkinshaw (1997) suggests the existence of three types of initiative: local market, internal market, and global market. However, as a result of the empirical research undertaken, a fourth type (labelled hybrid initiative) was identified. This corresponds to a case where the locus of opportunity is global, while the locus of pursuit is internal; it is the case, for instance, when a subsidiary, in competition with peer subsidiaries, seeks to attract a global investment which has already received, in principle, corporate support. In the analysis of divestment in Portugal, this kind of initiative increasingly is envisaged as relevant not just for the success, but even for the sheer survival of the subsidiary (Simões, 2004). All types of initiative may be relevant for the MNE as a whole. Even local market initiatives may be successfully replicated in other countries.

In general terms, subsidiary initiative is encouraged by a high level of subsidiary specific capabilities and by managerial entrepreneurial commitment. In contrast, it is curtailed by a high level of decision centralisation, and by low levels of subsidiary credibility and headquarters-subsidiary communication (Birkinshaw, 1997 and 1999; Birkinshaw & Hood, 2001). Focussing on international initiatives alone, Birkinshaw, Hood & Jonsson (1998) confirm and extend these findings, showing that subsidiary initiative is strengthened by the existence of subsidiary specialised resources, by a strong subsidiary leadership, and by industry globalisation. In line with our reasoning at the beginning of this heading, subsidiary autonomy has been identified as an antecedent to subsidiary initiative; unfortunately, however, the opposite relationship has not been tested. The earlier analysis by Birkinshaw (1997) identified a positive association of subsidiary autonomy with local and global market initiatives, but a negative one with internal market and hybrid initiatives. This is not surprising in the light of the comment by Forsgren & Pedersen (1998) mentioned above. To generate initiatives that impinge upon MNE-wide relationships and backing, influence may be more relevant than autonomy. In other words, if the subsidiary wants to pursue hybrid initiatives, for instance, the issue is not autonomy, but rather integration with influence. This means that the scope and implications of subsidiary initiative is multifaceted, and that further research is needed to better understand how subsidiary characteristics influence successful initiatives. Clearly, as Birkinshaw (1997: 225) underlined, “a single structural context cannot facilitate all four types of initiative”. To use Nordic authors parlance, the types of subsidiary initiative may be contingent upon the mix of the three facets of embeddedness a subsidiary faces: corporate, business context, and local environment (Andersson & Forsgren, 1996; Forsgren, Johansson & Sharma, 2000).

MNE knowledge creation and sharing

The above reviewed literature has already made some inroads into the process of MNE knowledge management. The increasing awareness of the role played by knowledge in firms' competitiveness and sustainability, leading namely to the knowledge-based theory of the firm (Grant, 1996), compounded with the 'MNE-as-a-network' perspective generated an upsurge in the literature on MNE knowledge management. The seminal contributions by Bartlett & Ghoshal (1989), Kogut & Zander (1992 and 1993), and Gupta & Govindarajan (1994) provided the basis for better understanding how knowledge creation and sharing take place in the MNE.

Geographical dispersion is now envisaged as a key asset for knowledge creation. The fact that the firm has units in different contexts provides increased opportunities for gathering, sharing and combining knowledge that may give rise to specific, difficult to imitate, value propositions. Simultaneously, the MNE network may be used as a mechanism for cross-fertilisation throughout the company. As Bartlett & Ghoshal (1989: 17) underlined, “worldwide learning capability” became an essential feature for sustained competitiveness. The creation of such capability involves three key considerations (Caraça & Simões, 1995): (1) to fully capture worldwide learning opportunities, the old hierarchical ‘command-and-control’ approach is no longer suitable; (2) cognitive capabilities at the center, important as they may be, remain limited and not enough in a knowledge economy, leading to the recognition of the network as a knowledge-creation device; and (3) knowledge creation and sharing demands a matrix approach, since knowledge creation may take place at different nodes and may be leveraged through interaction.

In this perspective, the creation of a shared context for interaction becomes essential. The development of a common culture and language worldwide as well as normative integration – the creation of “a matrix in manager’s minds” (Bartlett & Ghoshal, 1989: 175) – are central in this process. This cannot happen when subsidiaries are envisaged as ‘servants’ to a central power. It demands a new attitude with regard to subsidiaries’ initiative. There are, however, still problems in putting ideas into practice. As Szulanski (1996) has shown, knowledge is, even in the corporate context, ‘sticky’. There are several barriers to intra-firm knowledge sharing. Such barriers are related not just to the characteristics of the knowledge itself, but also to motivational dispositions of the partners and the absorptive capacity of the receiver. Gupta & Govindarajan (2000) took the analysis a step further, and found that features such as the value of the subsidiary knowledge stock and the transmission channels used did influence subsidiary outflows to peer subsidiaries as well as to the parent corporation. Specific knowledge obtained and/or developed by the subsidiary may grant this a bargaining lever *vis-à-vis* headquarters (Mudambi & Navarra, 2004). With regard to subsidiary knowledge inflows, the main determinants were found to be transmission channels and also, with regard to inflows from the parent, absorptive capacity and motivational disposition. Subsidiary’s absorptive capacity does not just influence knowledge inflows. It also seems to be a determinant of subsidiary innovation (Phene & Almeida, 2008). These authors made an interesting distinction between subsidiary sourcing and combinative capabilities. The former comes directly in the vein of Cohen & Levinthal (1990) and refers to the ability to effectively recognise and absorb knowledge; the latter stems from Kogut & Zander (1992) and concerns the managerial capability to integrate knowledge from different sources, internal and external to the MNE.

Gupta & Govindarajan (2000: 490) warned, however, that in spite of a general trend towards less hierarchical and network-like structures, “the parent corporation continues to serve as the most active creator and diffuser of knowledge within the corporation”. In other words, headquarters exert some coercion upon subsidiaries (and subsidiary management) regarding the type and extent of knowledge the subsidiary should absorb. Hierarchical fiat is a driver of isomorphism in MNEs. Headquarters’ influence seems to be stronger when the objectives of subsidiary

activities are clearly specified and when corporate socialisation mechanisms (international trips, visits and training, as well as international teams and task forces) are in place (Bjorkman, Barner-Rasmussen & Li, 2004). In contrast, both Andersson, Bjorkman & Furu (2002) and Bjorkman, Barner-Rasmussen & Li (2004) converge in the finding that direct behavioural controls by headquarters do not appear to be effective in fostering intra-MNE knowledge sharing.

Knowledge creation is also related to subsidiary local embeddedness (Birkinshaw & Hood, 2000; Forsgren, Johanson & Sharma, 2000). Facing a specific environment, with specific demands, the subsidiary has to develop adaptive capabilities to survive and prosper. Knowledge obtained from the MNE network, and namely from headquarters, has to be melded with local knowledge. Adaptation often entails the development of combinative capabilities, integrating knowledge from different sources and using it in a creative way to respond local challenges and opportunities. More often than not, innovative initiatives are a consequence of adaptive challenges faced by the affiliate. The research on CoEs in Portugal has shown this to be the case in several instances (Simões & Nevado, 2000). Again, however, a caveat is in order: the room for initiative may be significantly influenced by the role assigned to the subsidiary by headquarters (Cantwell & Mudambi, 2005).

The characteristics of the knowledge concerned may also play a role in the knowledge sharing process. The seminal paper by Winter (1987) identifies several knowledge dimensions which influence the ease of knowledge sharing between distinct actors. The most commonly used in the literature has been the tacit/codified contrast (see, for instance, Nonaka & Takeuchi, 1995). It has been argued, however, that a key explanation for MNEs to exist is their superior capability to share knowledge, namely tacit knowledge, across borders (Kogut & Zander, 1993). This may be a partial explanation for the fact that knowledge characteristics are more commonly used as determinants of inter-firm, such as in strategic alliances and joint-ventures (Simonin, 1999 and 2004; Dhanaraj *et alii*, 2004; Inkpen, 2008; Inkpen & Crossan, 1995), than of intra-firm knowledge sharing. Empirical evidence, though, shows that the costs of such sharing are far from trivial (Teece, 1981), and that there are internal barriers to knowledge sharing (Szulanski, 1996 and 2000; Forsgren, Johanson & Sharma, 2000; Andersson, Bjorkman & Furu, 2002).

Gupta & Govindarajan (2000) argued that more empirical research on the role of tacitness was needed. In this vein, Zhao & Luo (2005) assessed the influence of a number of factors on inter-subsidiary sharing of declarative and procedural knowledge. They found that the main determinants for the former were strategic interdependence and the existence of a technology linkage, while for the latter were knowledge encapsulation (that is, the use of a routinised codification process) and again technology linkage. Minbaeva (2007), however, has not found confirmation for her hypothesis that higher knowledge tacitness and complexity would lead to a lower degree of knowledge transfer to a focal subsidiary. A different perspective is provided by Birkinshaw, Nobel & Ridderstrale (2002), who found the system embeddedness of the knowledge concerned to have a significant influence upon the autonomy and integration of MNE R&D units.

Knowledge management is, as we have seen, closely related to innovation. Different innovation paths and perspectives may be considered. In broad terms, they may go

from outright centralisation to full decentralisation of innovation moves. In practice, however, this not a 'black-or-white' issue, but rather a question of the appropriate mix, having in mind the strategic objectives of the MNE and the characteristics of the environment. The concept of open innovation (Chesbrough, 2006) breaks the centralisation logic, and opens new room for decentralised moves, from inside and outside the firm.

An useful taxonomy of innovation processes in MNEs has been proposed by Bartlett & Ghoshal (1989). They considered four basic types: (1) *central*; (2) *local-for-local*; (3) *locally leveraged*; and (4) *globally-linked*. The first corresponds to the traditional perspective that new opportunities are identified in the MNE home country and lead to centrally developed innovations, which are then exploited internationally. In this approach innovative capabilities are centralised, entailing thus an hierarchical view of the organisation. Local-for-local innovation processes are characterised by the development of innovations by subsidiaries just for local use, based on a perception of significant national differences. Those innovations are envisaged as idiosyncratic, not being replicated elsewhere in the MNE; a dominance of a relatively decentralised innovation approach without effective intra-MNE (and inter-unit) communication leads to a waste of resources, associated with both the 'reinvent-the-wheel' and the 'not-invented-here' syndromes. The two latter perspectives have a more 'network-like' flavour. Locally leveraged innovation processes enable the worldwide replication/adaptation of innovations developed by subsidiaries. Such a leveraging may be pushed by headquarters or by the source subsidiary itself. In this way, subsidiary initiatives may become a wellspring of ideas for product, process, marketing or organisational innovations for the MNE as a whole. It demands a new understanding of the MNE, and underlines the advantage of mobilising subsidiaries innovative attitudes. However, as Bartlett & Ghoshal (1989) have warned, it is vulnerable to the 'not-invented-here' syndrome. Finally, globally-linked processes are characterised by putting together "the resources and capabilities of diverse worldwide units in the company, at both headquarters and subsidiary level, to create and implement innovations on a joint basis" (Bartlett & Ghoshal, 1989: 116).

This taxonomy of innovation processes provides an important instrument to assess the organisational context where the subsidiary develops its activities. One should recognise, however, that while the organisational culture may influence behaviours in one way or another, managerial systems, namely at the divisional level, are paramount in shaping innovation processes and specific behaviours.

Summing-up

The literature review undertaken above highlights an important shift in the way how MNEs are envisaged and managed. An hierarchical approach is gradually giving rise to a more network-based perspective of the MNE. This happens by the sheer facts that headquarters cannot control everything in an increasingly globalised world and that knowledge management demands matrix frames and worldwide openness. This is not to say that hierarchical control no longer exists. Not at all. It means however that control mechanisms are changing, and that more 'open' mixes of control mechanisms, putting less emphasis on centralisation and eliciting subsidiary involvement, are gaining room. As Sam Palmisano, the chairman and chief

executive of IBM put it, the “globally integrated enterprise” needs to secure “a supply of high-value skills” worldwide as well as to develop new ways of establishing trust, both within and outside companies’ borders (Palmisano, 2006: 19).

Our focus, however, will not be put on the MNE corporation as a whole, but rather the subsidiary or even on its sub-units (Pearce & Tavares, 2002; Frost, Birkinshaw & Ensign, 2002). With a common background of a less hierarchical and more networked MNE, the three literature strands reviewed above are inter-related and highlight important features to understand subsidiary behaviour. Combining the literature on subsidiary roles, and on their evolution, on subsidiary autonomy and initiative, and on intra-MNE innovation as well as knowledge creation and sharing it is possible to derive some headlines that will help us in defining a frame to address our research issue – the process of development of subsidiary innovation-driven initiatives.

Research Design

A process approach will be adopted in the study of subsidiary innovation initiatives¹. The research design is intended to follow the process of emergence, implementation and eventual replication of the initiative concerned. Accordingly, the present section will be organised in four steps. First, an operational definition and a taxonomy of innovation initiatives will be presented. Then, a number of propositions will be developed to identify the main antecedents to subsidiary innovation initiatives. Implementation and outcome issues will be addressed next. The section concludes with a brief discussion on the main non motivational determinants of the replicability of subsidiary innovation initiatives.

Subsidiary Innovation Initiative

The unit of analysis is the subsidiary innovation initiative. Drawing on Birkinshaw (1997) and Birkinshaw, Hood & Jonsson (1998), this is defined as a discrete, proactive undertaking aimed at achieving product, process, marketing and/or organisational innovation at the subsidiary level as well as at enhancing the resources and the scope of activities of the subsidiary with a view to improve the competitiveness of the MNE as a whole. We refer to the subsidiary as the *locus* of initiative, since this is usually the organisational level for developing and launching initiatives. We are aware, however, that in some instances such *locus* is not the subsidiary as such, but rather an unit, often formally integrated in a subsidiary. A MNE unit may be envisaged as a group in the MNE, located in a particular place and focussed on a well-defined job, with specific responsibilities, considered as a cost center or a profit center, irrespectively of its legal autonomy.

To develop a taxonomy of subsidiary initiatives, we mainly draw on Birkinshaw (1997). As mentioned above, he identified four types of initiatives, as follows: local market, internal market, global market, and hybrid. However, we think that this

¹ For the sake of economy, the terms ‘innovation initiative’ and ‘initiative’ will be used interchangeably to refer to ‘innovation initiatives’ as defined below.

typology may be improved, since two potentially relevant features of subsidiary initiative have not been taken into account: (1) manufacturing process and organisational improvements; and (2) subsidiary initiative in the context of globally-linked processes. Furthermore, hybrid initiatives need, in our opinion, to be more focussed. In fact, they broadly correspond to the gaining of new global or regional businesses in the context of inter-subsidiary competition; for instance, the gaining of a mandate to manufacture a new type of vehicle for which there was an internal competition among several subsidiaries.

Therefore, we will, in principle, consider the following six types of initiatives:

- (1) *Local market*, which may be defined as product, marketing or organisational innovations chiefly intended to improve subsidiary's performance in the domestic market. It is important to remark that some of these initiatives may be, at a later stage, replicated by peer subsidiaries in other markets or even internationally leveraged by headquarters; however, what is relevant for classifying the initiative is the fact that its original intent was addressed to the local market;
- (2) *Global market*, "driven by unmet product or market needs among *nonlocal* suppliers or customers" (Birkinshaw, 1997: 213). The term global is used for the sake of simplicity: it applies to all those initiatives whose intended market scope exceeded the subsidiary's host country market;
- (3) *Internal market*, encompassing the initiatives taken by the subsidiary with an aim to leverage existing subsidiary capabilities in the context of the MNE network. Examples of this kind of initiatives are the improvement of components to be used elsewhere in the organisation, the delivery of services to other subsidiaries or the increase of local value added in production;
- (4) *New Corporate Projects*, corresponding to initiatives to 'capture' for the subsidiary new investment projects that the MNE intends to undertake. This type broadly corresponds to the hybrid initiatives of Birkinshaw (1997). Usually the focal subsidiary is competing against other subsidiaries which want to undertake the same project. But it may just happen that the subsidiary internally 'sells' an idea for a new project with a view to carry it out. The above mentioned example of competition for manufacturing a new type of vehicle is an example of this kind of initiative. By the same token, the 'capture' of a project to manufacture a brand new product, entailing the building up of a new plant, fall within this type of initiative. Another example might be the initiative of *Solvay Portugal* to locate in the country a new shared services centre for the *Solvay* group.
- (5) *Process and organisational initiatives*, regarding the improvement of existing manufacturing processes, the development of new processes and/or the implementation of new organisational models and procedures. The main focus here is increasing efficiency in the use of company resources. It is important to draw a borderline between this sort of initiatives and internal market efficiency seeking initiatives. Here we are concerned are subsidiary orientated initiatives, i.e. which were primarily intended to enhance the focal subsidiary efficiency. As it happens with local market initiatives, they may be internationally leveraged at a later stage; and
- (6) *Globally-linked initiatives*, which concern subsidiary initiatives taken in the context of MNE sponsored globally-linked innovation processes. In this case there is not an 'autonomous' initiative from the subsidiary. Instead, this comes

as a consequence of the subsidiary involvement in international innovation teams. The initiative is not taken by the subsidiary alone, but rather in the framework of a joint internal knowledge development and sharing process, where the subsidiary assumes a key role.

Antecedents to Subsidiary Innovation Initiative

Drawing on the above reviewed literature, a number of propositions regarding the antecedents to subsidiary initiative may be derived. They are presented below, together with the respective supporting arguments.

Proposition 1: *Subsidiary role influences the emergence of subsidiary innovation initiatives.*

Taking an evolutionary perspective, one may argue that the relationship might be reversed, that is, the dynamics of subsidiary initiative may lead to a change in subsidiaries roles (Lu, Chen & Lee, 2007). However, we are mainly concerned, not with the determinant factors for role changes, but rather with the antecedents to subsidiary initiative. From this standpoint, present subsidiary roles broadly define a basic room for manoeuvre of subsidiary managers, and therefore a scope for subsidiary initiatives. For instance, a subsidiary assigned a CoE role is expected to have a high level of initiative. Furthermore, since roles are related to subsidiary's resources, they constrain (or stimulate) subsidiary initiative.

As we have seen above, there is a wide literature on subsidiary roles (White & Poynter, 1984 ; Jarillo & Martinez, 1990 ; Bartlett & Ghoshal, 1989; Simões, 1992; Taggart, 1997a and 1997b; Gupta & Govindarajan, 1991 ; Kuemmerle, 1999). However, this is not exactly fit our purposes, since it is not specifically concerned with the relationship between roles and initiative. For this reason, we propose a new set of criteria on this regard. A subsidiary role is envisaged as the outcome of the inter-action between two main features: (1) *Competencies*; and (2) *Autonomy*.

Competencies are defined along three vectors:

- (1) *Activity Scope*, encompassing three main activities: upstream (R&D, product design, process design, knowledge access), operations (manufacturing + logistics), and downstream (marketing, distribution, service); a given subsidiary activity scope will be typified as the result of the four possible combinations of these three basic activities (remember that we are, in this paper, concerned with manufacturing subsidiaries). It is important to remark that there may be cases in which the relevant organisational basis is the unit and not the subsidiary as a whole;
- (2) *Interaction Scope*, which broadly corresponds to the geographic field on which subsidiary's activities matter, and particularly to which its outputs are addressed (local, MNE group, international); and
- (3) *Specificity*, identifying the degree to which subsidiary's competences are distinctive in the context of the MNE. Three levels of specificity are considered: (i) basic, when competences are widely available throughout the MNE; (ii) relevant, when similar competences are also held by a few other subsidiaries (or units) in the MNE; and (iii) unique, if the subsidiary has unique competences, of significant relevance for the whole MNE.

Autonomy may be defined as subsidiary's capability to take decisions on its present and future resources and activities. It will be operationalised according to the *locus* of decision-making processes, according to the procedure already followed by Taggart & Hood (1999) and Simões, Biscaya & Nevado (2002).

Proposition 2: *The characteristics of subsidiary management influence subsidiary innovation initiatives.*

Authors such as Birkinshaw (1997 and 2000), Delany (1998), Bartlett & Ghoshal (1989) and Ghoshal & Bartlett (1994) underlined the importance of managerial will in the process of subsidiary upgrading and initiative. The entrepreneurial drive of subsidiary managers is related to four factors: leadership, job tenure, nationality, and legitimation. Let us briefly present each of them.

Subsidiary management *leadership* capabilities are expected to play an important role in providing direction as well as in supporting the development of a behavioural context conducive to stimulate initiative among employees (Ghoshal & Bartlett, 1994; Delany, 1998). As Birkinshaw, Hood & Jonsson (1998: 227) put it, "it is typically the championing and sponsoring efforts of [subsidiary] top management that trigger the assignment of new international responsibilities or mandates to the subsidiary". Leadership styles are instrumental in fostering an entrepreneurial drive, in generating enthusiasm and commitment, and in unleashing employees' capacities for innovation. The typology of leadership styles used by Simões (1997), derived from Hersey & Blanchard (1988), will be used in this connection.

Managers with *longer tenured positions* would be, in theory, able to achieve more autonomy, since their careers are less constrained by headquarters decisions. This reasoning has received strong empirical support in the research of Simões, Biscaya & Nevado (2002). When subsidiary managers have short term assignments, their career prospects are elsewhere, and are not so much related to subsidiaries superior performance and initiative. Achieving a satisficing performance may be enough to aspire to higher ranked jobs. Following a secure, 'by-the-book' behaviour may be envisaged as potentially more rewarding than facing the risks associated to entrepreneurship and initiative. In contrast, when managers' job tenure is longer, a closer association between career and subsidiary fates is likely. Personal attachments to the subsidiary as well to the underlying social community tend to be stronger. Similarly, an increased awareness of local embeddedness and opportunities may arise. A counter-argument may be, however, raised: longer tenure may lead to inertia and routinised behaviour. Though this may happen, usually MNEs have control mechanisms to counter these situations. So, taking into considerations the various aspects, it may be hypothesised that subsidiaries whose managers have longer tenures positions are likely to display higher levels of initiative.

Managers' nationality may also count. In principle, those managers who are nationals of the country where the subsidiary is located would be more prone to take initiatives, and to envisage their role as dynamic furtherers of benefits for both the MNE and the host country. Delany (1998) strongly underlined this facet in his study on the strategic development of multinational subsidiaries in Ireland. Two further

arguments may be mentioned in the same vein. Managing is to a large extent based on the capability to persuade others to achieve defined objectives, by instilling responsiveness, motivation and commitment. *Ceteris paribus*, a national manager is more able to appropriately fulfil such roles, since he (she) speaks the same language and shares the same culture. National managers also tend to perform better in exploring the opportunities stemming from the subsidiary local embeddedness, namely those which may generate the development of firm-specific capabilities. Conversely, it may be argued that nationals may be less able to nurture and explore corporate embeddedness, and to get both headquarters and peer subsidiaries recognition of focal subsidiary capabilities, since they may be suspect of suffering from a national bias. However, Andersson, Bjorkman & Furu (2002) have not found empirical support for their hypothesis that subsidiaries with a higher share of expatriates were more successful in transferring competences to other units within the MNE. Therefore, it may be hypothesised that subsidiary initiative is more likely the higher the share of nationals in the top management, *maxime* when the general manager of the subsidiary is a citizen of the country concerned.

Initiatives take place in a corporate context. The room for managerial entrepreneurship is related to the *legitimacy* of subsidiary's top management. Legitimation from headquarters or divisional management is needed to allow, support or even sponsor initiative. It stems from managers track records within the MNE. Higher levels of legitimacy are more likely when subsidiary managers have followed an international career in the MNE, and particularly when they have successfully worked at corporate or divisional headquarters. But legitimacy may also be gained through a sustained successful performance at the subsidiary concerned, and especially when a successful turnaround has been undertaken. Drawing on this reasoning, one may hypothesise that the higher the managerial legitimacy, the more likely subsidiary innovation initiatives are.

Proposition 3: *Focal subsidiary's historical track record influences the emergence of subsidiary innovation initiatives.*

Evolutionary approaches underline the role of the past in shaping the development of subsidiaries. Although these may evolve and upgrade their capabilities, such processes take time to develop (Bartlett & Ghoshal, 1989; Cantwell, 1989; Taggart, 1998a and 1998b; Simões, 1992). History influences the level of subsidiary's resources and capabilities, and therefore the room for initiative their managers enjoy. Three main features of subsidiary's historical track record will be taken into account: mode of establishment, culture, and past innovativeness.

There is much discussion in the literature concerning the role of the *mode of establishment* in subsidiary innovativeness. It may be argued that acquired subsidiaries are more likely to have distinctive capabilities, accumulated prior to their acquisition, being therefore less constrained by the MNE 'inprint' and more able to launch initiatives. The research on CoEs has shown that those CoEs which result from acquisitions take usually a shorter time to earn the CoE status (Simões & Nevado, 2000). According to Cantwell & Mudambi (2005), the influence of acquisitions is contingent upon subsidiaries' mandate: those without competence-creating mandates will see their R&D intensity reduced, while the opposite will happen for those granted competence-crated mandates. However, we are not

concerned with the size of R&D activities, but rather with innovation initiative. We may argue that in a *ceteris paribus* condition, acquired subsidiaries will be more likely to take initiatives.

Subsidiary's culture has been mentioned by Birkinshaw, Hood & Jonsson (1998) as an antecedent to international subsidiary initiative. Although these authors have established an association to top management behaviour, we think that subsidiary's culture may be an important determinant of subsidiary initiative on its own. It is true that subsidiary culture is not independent from its role; it may also be related to the overall MNE corporate culture as well as to the mode of acquisition. Nevertheless, we consider that an established culture of entrepreneurship, responsibility and commitment within the subsidiary is conducive to higher degrees of initiative.

Innovation track record may be another antecedent to subsidiary initiative. Its influence may take place in two ways. First, a poor track record may reduce confidence (Kanter, 2004) and the internal drive to take risks and go against routinised behaviour. Second, a good track record increases subsidiary's credibility, which has been found to be an important determinant of subsidiary initiative (Birkinshaw, 1999). Past performance casts a shadow on the future, both internally and externally, on subsidiary's self-image and hetero-image, and should therefore be taken into account to understand the emergence of initiatives.

Proposition 4: *The corporate context influences subsidiary innovation initiative.*

The overall perspectives of the MNE towards their operations abroad as well as towards innovation may also be a powerful factor influencing international units initiative. The characteristics of the corporate context are considered as important antecedents to subsidiary behaviour and innovativeness (Bartlett & Ghoshal, 1989; Foss & Pedersen, 2002; Gupta & Govindarajan, 1991 and 2000; Cantwell & Mudambi, 2005; Zhao & Luo, 2005). A number of features have been identified in the literature. The most relevant, from our perspective, seem to be the following: corporate culture and strategy; corporate control mechanisms; inter-subsidiary competition; and headquarters-subsidiary communication.

Corporate culture and strategy define a broad framework that may elicit or constrain subsidiary entrepreneurial drive and initiative (Bartlett & Ghoshal, 1989; Hedlund, 1986, Mu, Gnyawall & Hatfield, 2007). In more hierarchical MNEs, subsidiary initiative may be restricted, while in more network-orientated MNEs an overall climate to stimulate the initiative by individual units is more likely. More specifically, transnational strategies (Bartlett & Ghoshal, 1989) simultaneously entail higher levels of responsibility and of initiative scope for subsidiaries. However, multinational strategies may also be conducive to initiatives, although mostly of the local market type. In contrast, the room for initiative, irrespectively of the type, tends to be lower in global strategies. MNEs following open innovation strategies are, as a rule, more adept of subsidiary initiatives. These may be relevant to engage outside co-innovators. Similarly, in their internal processes to generate new ideas, MNEs may launch specific programmes to stimulate innovation drives in local units. Although some further qualifications may be needed, as pointed out above in the contrast between multinational and transnational strategies, we assume that, in principle, this factor might be operationalised with recourse to Bartlett &

Ghoshal's typology of MNE strategies: multinational, international, global and transnational.

The literature on knowledge creation and sharing processes within MNEs has mentioned the role of *corporate control* in shaping the patterns of such processes (Ambos & Schlegelmilch, 2007; Andersson & Forsgren, 1996; Gupta & Govindarajan, 1991 and 2000; Cantwell & Mudambi, 2005; Bjorkman, Barner-Rasmussen & Li, 2004). Conversely, other authors, mainly those focussing on the subsidiary, have underlined subsidiary autonomy (Birkinshaw, 1997; Birkinshaw, Hood & Jonsson, 1998; Foss & Pedersen, 2002) and self-determination (Mudambi, Mudambi and Navarra, 2007). Put this way, however, the issue reverts to the autonomy factor already taken into account in defining subsidiary roles. It seems more helpful to address it from the standpoint of the control mechanisms used. Although the mix of these is related to the corporate strategy factor (Bartlett & Ghoshal, 1989), headquarters control mechanisms do appear to influence both initiative and knowledge sharing in MNEs (Gupta & Govindarajan, 2000; Bjorkman, Barner-Rasmussen & Li, 2004, Nobel & Birkinshaw, 1998). On the other hand, there are feed-back effects, with knowledge characteristics (Birkinshaw, Nobel and Ridderstrale, 2002) and subsidiary's R&D mandate and interdependence explaining control mechanisms (Ambos & Schlegelmilch, 2007). Drawing on Bartlett & Ghoshal (1989) and on Bjorkman, Barner-Rasmussen & Li (2004), four main types of mechanisms may be considered: centralisation, formalisation, vertical socialisation, and lateral socialisation. It may be argued that both vertical and lateral socialisation mechanisms are those which are more likely to stimulate subsidiary initiative.

One of the emerging characteristics of network-type MNEs is an increasing *inter-subsidary competition* (Tavares, 2005). In multinational and international firms *à la* Bartlett & Ghoshal (1989), subsidiaries have their market scope well defined, usually corresponding to the local market. In global firms, the centralisation of resources means that headquarters take the decisions on subsidiary activity scope. In both cases, the room for inter-subsidary competition is low. The same does not happen when manufacturing and marketing activities are dispersed worldwide and there is a *décolage* between the *locus* of subsidiaries activities and its marketing responsibilities. This divide is even stronger when the subsidiary is just an integrated manufacturer, with no marketing responsibilities. In this case subsidiaries compete for resources and for new projects: if they are able neither to show a better track record nor to manage internal politics in order to capture those projects, they may be left in an irreversible path to decline and divestment (Simões, 2004). Inter-subsidary competition is no less keen to earn relevant mandates in the context of the MNE, as it happens with worldwide product mandates (Crookell & Morrison, 1990; Birkinshaw, 1996) or CoE mandates (Forsgren, Johanson & Sharma, 2000; Forsgren, Mathisen & Pedersen, 2000; Zuzarte, 2005). To discern the likely impact of inter-subsidary competition on subsidiary initiative, three aspects should be balanced. First, the absence of internal competition may be conducive to local initiatives, since these may be the best way for the subsidiary to develop its resources. Second, excessive inter-subsidary competition may jeopardise globally-linked innovation processes, and therefore globally-linked initiatives. Finally, such competition may foster initiative, especially of the global and internal kinds, since

innovative moves may be essential for the subsidiary to enhance its position in the MNE network.

Headquarters-subsidiary communication seems to be very important from at least three perspectives: (1) to generate a positive climate for initiative; (2) for the subsidiary to have access to relevant information and knowledge (Gupta & Govindarajan, 2000); and (3) for gaining internal support for innovative initiatives. Such communication may be envisaged as having two main facets: (1) headquarters' attention granted to the subsidiary (Birkinshaw, 1997; Birkinshaw, Hood & Jonsson, 1998; Andersson, Bjorkman & Furu, 2002); and (2) subsidiary-parent relationship to get room for, and 'sell', the initiative (Birkinshaw, 1997). The existence of good intranet systems seems to facilitate knowledge sharing (Zhao & Luo, 2005), therefore providing further input for subsidiary initiative. It may be argued *a contrario* that weak communication processes may give the subsidiary more autonomy, and therefore room for initiative. This may have been true for subsidiaries in distant countries, but it seems less and less feasible in a globalised World and in network-type MNEs. So, we hypothesise that stronger headquarters-subsidiary communication is likely to encourage subsidiary initiative.

Proposition 5: *The competitive environment of the industry concerned influences subsidiary innovation initiative.*

Birkinshaw, Hood & Jonsson (1998) underlined the relevance of what they called "business environment" on the emergence of subsidiary initiatives. They adopted a wide approach to such environment, encompassing both local and global facets. However, it seems more appropriate for our purposes to draw a divide between the overall competitive environment of the industry and the local business environment. The first will be addressed now, while the latter will be dealt with in the next proposition.

Two main features of the competitive environment seem to be relevant as antecedents to subsidiary innovation initiatives: intensity of international competition, and industry globalisation. The *intensity of international competition* is likely to create in companies a sense of urgency leading to innovation as a key instrument for achieving sustained competitiveness. This may turn into a pressure for generating new ideas and launching initiatives throughout the company. However, as Birkinshaw, Hood & Jonsson (1998) found, low levels of competition may lead to relatively protected niches where initiatives may take place in an adaptive way. *Industry globalisation* has been suggested by Birkinshaw, Hood & Jonsson (1998: 228) as a determinant of subsidiary initiative on the basis of the following argument: global industries "require a high level of specialisation from subsidiary companies as each focuses on undertaking certain specific activities on behalf of the MNC as a whole". The hypothesis has been empirically confirmed. Accordingly, it is suggested that subsidiaries in highly globalised industries are more likely to engage into innovation initiatives.

Proposition 6: *The local business environment does influence subsidiary initiative.*

The literature provides abundant examples of the role played by local embeddedness in the development of subsidiary specific resources, competences and innovative

initiatives (Birkinshaw & Hood, 2000; Andersson & Forsgren, 1996; Andersson, Forsgren & Holm, 2001 and 2002; Forsgren, Johanson & Sharma, 2000; Frost, 2001; Holm, Holmstrom & Sharma, 2005; Mu, Gnyawall & Hatfield, 2007). Local anchoring is relevant for identifying and seizing opportunities as well as for the development of specific competences that may leverage the position of the subsidiary in the MNE network (Forsgren & Pedersen, 2000; Mudambi & Navarra, 2004). Andersson, Forsgren & Holm (2002) distinguish between business and technical embeddedness. For our purposes, three features of local business environment deserve consideration: demanding customers, local sourcing, and relationships with local scientific and technological organisations.

Porter (1990) has stressed the role of *demanding customers* in the development of industry clusters. Birkinshaw & Hood (2000) have also mentioned that subsidiaries in leading-edge industry clusters tend to have stronger relationships with local customers. Empirical evidence shows that demands from customers may lead to the development of specific initiatives that enable the subsidiary to generate unique assets in the MNE context (Simões & Nevado, 2000; Forsgren & Pedersen, 2000). In creative industries, the identification of specific customer groups that anticipate market trends may also be used as a wellspring of initiative (von Hippel, 2005; Chesbrough, 2006). It may be therefore hypothesised that the more demanding local customers are, the higher the probability of innovative subsidiary initiative.

Similarly, *local sourcing* may provide room for innovation initiatives. Joint product and process development with suppliers may be an instrument for the subsidiary to create opportunities for the whole MNE group. The efforts to increase local sourcing were found to be relevant in the formation and strengthening of local clusters (Birkinshaw & Hood, 2000), which, of course, imply some degree of subsidiary initiative. In the same vein, Andersson, Forsgren & Holm (2001) found a positive relationship between subsidiary's external technical embeddedness and the subsidiary importance for MNE competence development. Local sourcing is thus envisaged as an antecedent to subsidiary resource and competence specificity as well as initiative.

The *relationships with local scientific and technological organisations* are also important instruments for subsidiary competence development and initiative. The extent and patterns of such relationships vary according to the host country level of scientific and technological development and subsidiary's sourcing and combinative capabilities (Phene & Almeida, 2008; Nobel & Birkinshaw, 1998; Cantwell & Mudambi, 2005; Teixeira & Tavares-Lehmann, 2008). Subsidiary's initiative to tap into specific national systems of innovation and scientific and technological environments is increasingly envisaged as a key tool for enhancing overall MNE competitiveness (Cantwell, 1989; Birkinshaw & Hood, 2000 and 2001; Doz, Santos & Williamson, 2001; Chesbrough, 2006). The development of the *Nokia Siemens Networks* "eco-system" in Portugal is a good example of the relevance of relationships to have access to resources and to nurture subsidiary initiative (Picoito, 2005). On the basis of the above, the extent and intensity of relationships between the subsidiary and the local scientific and technological environment may be considered as a determinant of subsidiary initiative.

Implementation and Outcome

Once the innovation initiative has emerged, the issue becomes its implementation. To launch the initiative, the subsidiary may need additional resources from the MNE network. In several cases it may need the approval from corporate or divisional headquarters. To get both, a process of ‘selling’ the initiative to headquarters and peer subsidiaries is usually needed. As mentioned above, such a ‘selling’ tends to be more successful the higher the reputation and legitimacy of subsidiary’s top management, the subsidiary’s innovation track record, and parent-subsidiary communication. That is, some of the factors behind the emergence of the initiative are also relevant in overcoming the gap between the innovation initiative idea and its implementation.

The study of such gap is not a central concern in the present research. Accordingly, the only issue to be highlighted here is the *appraisal process* by corporate or divisional headquarters. In this regard, we will follow, with a few qualifications, Birkinshaw (1997)’s typology: (1) implicit approval; (2) explicit approval; and (3) rejection.

Implicit approval corresponds to those cases where the initiatives fall within the subsidiary decision-making scope or when a tacit or just verbal *nihil obstat* has been granted by headquarters or by relevant top managers at the headquarters. *Explicit approval* means that a formal positive decision on the initiative has been taken at the divisional or corporate headquarters level, which has been formally communicated to the subsidiary. The process may be triggered by: (1) a request for approval asked by subsidiary management; (2) a request by headquarters to analyse and decide on the initiative; or (3) a formal application by the subsidiary on the basis of information regarding headquarters intention to elicit subsidiary applications to carry out a new project. A *rejection* corresponds to an implicit or explicit turning down of a subsidiary initiative idea. Some rejections are formalised in written form, while others are just verbal discouragements of the initiative concerned, such as “this does not appear to be very interesting”, “this does not seem to fit our strategy” or “subsidiary X has already tried something similar, and failed, so may be it is not a good idea to go ahead”. It is important to remark that rejections at a given moment may turn into (implicit or explicit) approvals later on, provided that subsidiary’s top management has the drive and the commitment to relaunch the process, getting internal sponsorship for the initiative.

As Birkinshaw (1997) found, the nature and result of the appraisal process is related to the type of initiative concerned. For instance, local initiatives that largely fall under the purview of subsidiary’s decision-making implicit approval tend to be more common. This sort of approval may also be frequent in the context of subsidiary-specific process and organisational initiatives. Conversely, a formal, explicit approval is usually needed for new corporate projects.

Then comes the issue of the *outcome* of the innovation initiative. It is important to identify at the outset the intended outcomes behind the initiative. These may not be

just expressed in monetary terms, for instance a given level of increase in sales or profits. They may take other features, such as the development of a strong relationship, the access to strategic resources or the increase in subsidiary's autonomy, power or influence within the MNE.

As to the classification of the outcome, three possibilities do exist: (1) success, (2) failure, and (3) uncertain outcome. This mainly happens when the time elapsed is still too short to make a fair assessment; of course, sooner or later, it will revert to one or another of the two basic outcomes. The assessment is not, in most cases, a 'black-or-white' matter. There may be different, and diverging, perspectives, that is, several shades of grey. In line with the literature on international business evaluation, the most appropriate approach would be to have the views from different managers with regard to the results achieved compared to the intended results. Furthermore, the multifaceted nature of performance also needs to be taken in mind (Hult *et al.*, 2008). The relevant standpoint is of course that of the subsidiary concerned.

Replication

In principle, failed initiatives will be abandoned, while successful ones may be, or not, replicated elsewhere in the MNE². This is last issue of the subsidiary initiative process to be addressed in the present paper.

This issue has close relationships to those considered in the literature on intra-firm knowledge development and sharing, and particularly to a recent, but increasing, strand on subsidiary-parent and on inter-subsidary knowledge sharing (Andersson, Forsgren & Holm, 2002; Foss & Pedersen, 2002 and 2004; Gupta & Govindarajan, 2000; Minbaeva, 2007; Phene & Almeida, 2008; Szulanski, 1996; Zhao & Luo, 2005). This literature provides a wide array of factors influencing the extent and success of subsidiary-originated knowledge sharing and replication throughout the MNE. It is not our concern here to proceed to an in-depth analysis of those factors. We would just like to underline two aspects that may, in our view, significantly affect the extent and success of the replication of (successful) subsidiary initiatives elsewhere in the MNE. The two aspects mentioned are the following: specificity of the initiative; and type of knowledge involved.

In fact, replication depends on the *specific nature of the initiative* itself. The taxonomy of initiatives developed above provides a first insight on the replication potential. For instance, the initiatives less prone to be replicated are, in principle, 'corporate projects initiatives', since usually they are 'one-of-a-kind'. Local initiatives may be difficult to replicate when they are associated with intrinsic features of local embeddedness and business relationships. However, some of them may be internationally leveraged, especially when they are encapsulated in products. Many 'process and organisational initiatives' may be replicated in environments similar to those where they have emerged. Global, internal and globally-linked initiatives appear to have the highest replicative potential, although, especially in the two first cases, such a replication may raise motivational challenges (Szulanski,

² One should, however, bear in mind that some failures may contain the seeds for future successes. The learning from failure may be very relevant to achieve successes in the future (Maidique & Zirger, 1985).

1996; Gupta & Govindarajan, 2000). We want, however, to go further in the analysis of the specificity of the initiative concerned.

The *type of knowledge* involved in the replication may stimulate or hinder it. The taxonomy of knowledge assets provided by Winter (1987), and operationalised by Zander & Kogut (1995) provides the basic ground for the analysis. We are chiefly concerned with two dimensions: tacitness, and system embeddedness. *Tacitness* is a source of causal ambiguity (Reed & de Filippi, 1990; Caraça & Simões, 1995; Simonin, 1999 and 2004; Szulanski, 1996), and therefore makes replication more difficult and risky. In contrast, when knowledge is codified replication becomes easier (Kogut & Zander, 1995; Zhao & Luo, 2005). *System embeddedness* may be defined as the extent to which the knowledge is a function of the system or context in which it is embedded (Birkinshaw, Nobel & Ridderstråle, 2002). The stronger this characteristic, the more difficult replication (and particularly successful replication) becomes. More specifically, Birkinshaw, Nobel & Ridderstråle (2002) found that those MNE units with higher levels of integration with other units and with a low level of system-embedded knowledge are the best performers on what knowledge sharing is concerned. Therefore, replication is especially difficult when the knowledge concerned is simultaneously tacit and system-embedded.

Proposed research framework

Drawing on the above, an integrated framework to carry out empirical research on subsidiary innovation initiative processes may be proposed. Its headlines are presented on Figure 1 below. The Figure is largely self-explaining, having in mind the propositions as well as the elements of the research design developed in the previous section. At this juncture, we would just mention a few remarks.

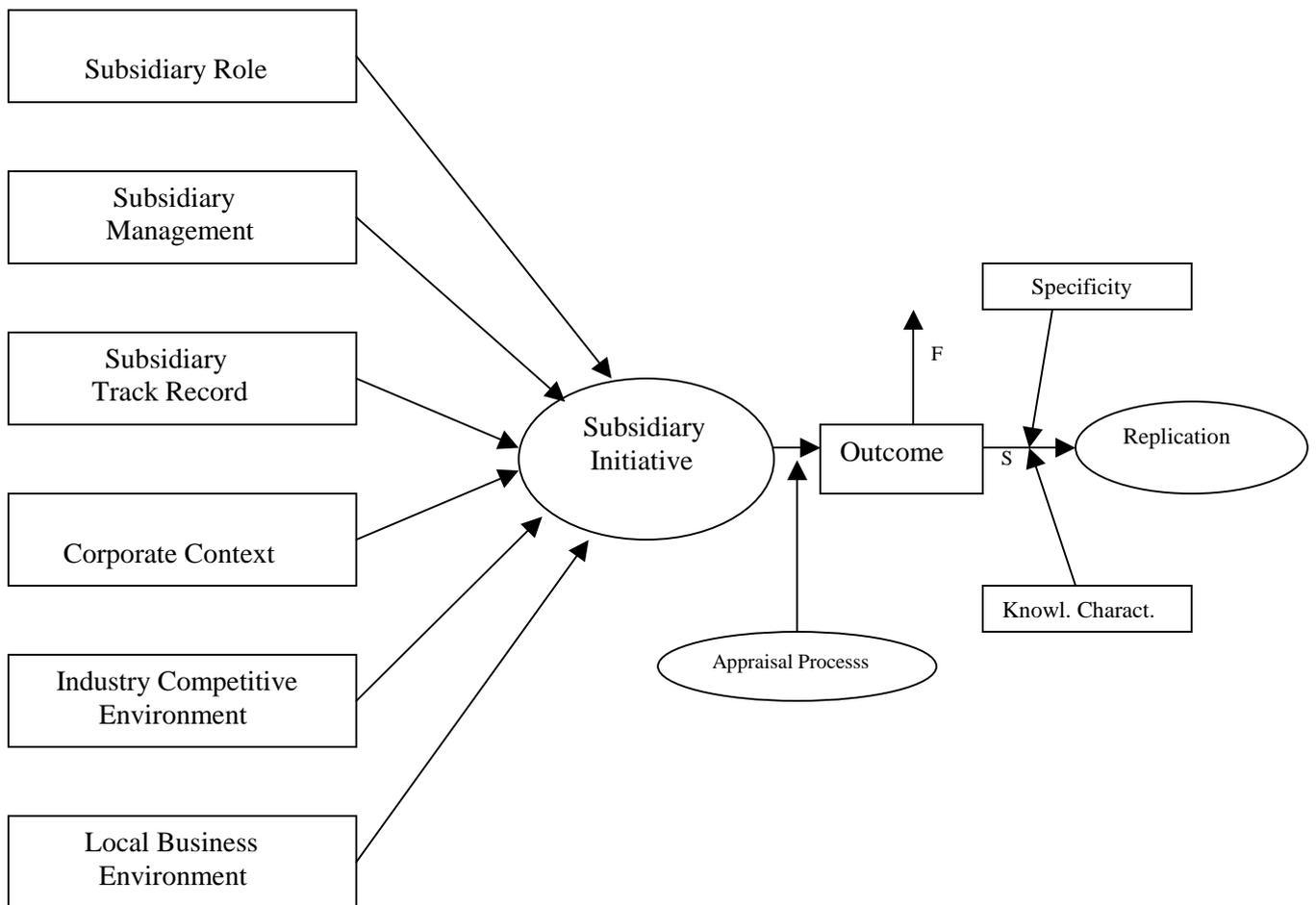
The first concerns the advantages of adopting a process view. At the end of the day, the issue is the success of the innovation initiative taken, and their implications for both the subsidiary and the MNE. To restrict the analysis to understanding just how innovative initiatives emerge, though important, is not enough. An overall perspective of the process is needed to fully capture and analyse the way how innovation initiatives develop.

Another, more focussed, remark concerns the antecedents to subsidiary initiative. Since we will start with an exploratory approach, propositions were formulated in a relatively broad way. As it was pointed out, beneath each of the six factors identified there are more specific aspects which may also deserve consideration, and further elaboration. Therefore, when carrying out the empirical research those specific aspects need to be closely examined, in order to redefine, and focus, the set of antecedents. This will be an important step for better understanding the process of subsidiary innovation initiative.

A third comment regards the implementation process. At the present stage, we just pointed out the appraisal process. This will be, in principle³, the first step in bridging the gap between the idea and its outcome. The implementation process may be

³ In principle, since in several instances the subsidiary may launch the initiative before getting approval from headquarters. It may be anticipated that many cases of tacit approval will take place in this context.

difficult and tricky, requiring a large deal of motivation, teamwork (internal to the subsidiary, but often involving also external stakeholders and other organisations of the MNE network), problem-solving and knowledge creation. This might be the subject of a project on its own. Nevertheless, we do expect the process perspective adopted to shed some additional light on the implementation process, thereby contributing to extend and improve the findings of Birkinshaw (1997).



S denotes success of the initiative, while F denotes failure.

Figure 1: Integrated Research Framework

Finally, a few words concerning the replication of the initiative. The research framework identifies two factors only: knowledge characteristics and specificity of the initiative. As mentioned above, we are fully aware of the existence of other potentially relevant issues, namely the motivation of the organisations involved, as Szulanski (1996) has found. This may also be associated to the headquarters backing of the initiative as well as to the internal standing of the source subsidiary. We do hope that the exploratory research might contribute to provide additional insights as

to the process of replication of initiatives. This has much in common with knowledge sharing processes, but goes further insofar as it requires implementation at the recipient organisation.

The steps ahead

Empirical research will be based on the headlines presented above, and namely on the integrated research framework. This should not be envisaged as a 'straight-jacket' to limit the work ahead. Rather, it is intended to be a focussing device, to provide guidance for the research and to enable research consistency.

The research will be pursued in three stages. The first is exploratory, and will involve case studies of a few foreign subsidiaries. The purpose is to better understand the scope and main features of subsidiary initiative processes. It will be undertaken in Portugal. However, if colleagues from other countries find the research framework appealing, and want to join us in this endeavour, they are mostly welcome; the more cases we have, the better might our understanding of the process become.

The second, based on the lessons learned from the case studies, will be a validation, and possibly a revision, of the original framework. As it was mentioned above, we are convinced that the framework has the potential to be further refined and 'deepened'. The case studies are expected to provide insights that may enable to improve our approach in at least three fields: the determinants of subsidiary entrepreneurial drive and initiative; the initiative implementation process; and the replication process in peer subsidiaries or units. Each of these phases may deserve a specific approach on its own.

The consolidation and revision of the integrated framework will provide the foundation for the last stage: the carrying out of a survey of subsidiary initiatives, on the basis of a consistent questionnaire. This will be an important step to confirm and validate the findings from the case studies and, at the end of the day, the integrated framework (or parts of it). Desirably, this should be an international endeavour, going further than the pioneering effort undertaken by Birkinshaw, Hood & Jonsson (1998).

We do hope this paper might stimulate other colleagues to focus their research on subsidiary innovation initiatives and to embark on the envisaged cooperative initiative.

REFERENCES

- Adenfelt, Maria and Katarina Lagerstrom, 'The development and sharing of knowledge by Centres of Excellence and Transnational Teams', *Management International Review*, **48** (3), 319-338.
- Ambos, Bjorn and Bodo Schlegelmilch (2007), 'Innovation and control in the multinational firm: A comparison of political and contingency approaches', *Strategic Management Journal*, **28**, 473-486.
- Andersson, Ulf and Mats Forsgren (1996), 'Subsidiary embeddedness and control in the multinational corporation', *International Business Review*, **6**(3), 319-334.
- Andersson, Ulf, Ingmar Bjorkman and Patrick Furu (2002), 'Subsidiary absorptive capacity, MNC headquarters' control strategies and transfer of subsidiary competences', in Sarianna Lundan, ed., *Network knowledge in international business*, Cheltenham: Edward Elgar, 115-136.
- Andersson, Ulf, Mats Forsgren and Ulf Holm (2001), 'Subsidiary embeddedness and competence development in MNCs – A multi-level analysis', *Organization Studies*, **22**(6), 1013-1034.
- Andersson, Ulf, Mats Forsgren and Ulf Holm (2002), 'The strategic impact of external networks: subsidiary performance and competence development in the multinational corporation', *Strategic Management Journal*, **23**, 979-996.
- Bartlett, Christopher A. and Sumantra Ghoshal (1989), *Managing accross borders: The transnational solution*, Cambridge, Mass.: Harvard Bus. School Press.
- Birkinshaw, Julian (1995), *Entrepreneurship in multinational corporations: The initiative process in Canadian subsidiaries*, unpublished doctoral dissertation, Harvard University.
- Birkinshaw, Julian (1996), 'How global subsidiary mandates are gained and lost', *Journal of International Business Studies*, **27**(3), 467-495.
- Birkinshaw, Julian (1997), 'Entrepreneurship in Multinational Corporations: The Characteristics of Subsidiary Initiatives', *Strategic Management Journal*, **18** (3), 207-229.
- Birkinshaw, Julian (2000), *Entrepreneurship in the global firm*, London: Sage.
- Birkinshaw, Julian (1999), 'The determinants and consequences of subsidiary initiative in multinational corporations', *Entrepreneurship Theory and Practice*, **24**(1), 9-28.
- Birkinshaw, Julian and Neil Hood (2000), 'Characteristics of foreign subsidiaries in industry clusters', *Journal of International Business Studies*, **31**(1), 141-154.
- Birkinshaw, Julian and Neil Hood (2001), 'Unleash innovation in foreign subsidiaries', *Harvard Business Review*, March, 131-137.
- Birkinshaw, Julian, Neil Hood and Stefan Jonsson (1998), 'Building firm-specific advantages in multinational corporations: The role of subsidiary initiative', *Strategic Management Journal*, **19**, 221-241.
- Birkinshaw, Julian, Robert Nobel and Jonas Ridderstråle (2002), 'Knowledge as a contingency variable: Do the characteristics of product predict organizational structure?', *Organization Science*, **13**(3), 274-289.
- Bjorkman, Ingmar, Wilhelm Barner-Rasmussen & Li Li (2004), 'Managing knowledge transfer in MNCs: The impact of headquarters control mechanisms', *Journal of International Business Studies*, **35**(5), 443-455.
- Cantwell, John (1989), *Technological innovation and multinational corporations*, Oxford: Basil Blackwell.
- Cantwell, John and Ram Mudambi (2005), 'MNE competence-creating subsidiary mandates', *Strategic Management Journal*, **26**, 1109-1128.
- Carça, João M. G. and Vitor Corado Simões (1995), 'The new economy and its implications for international organisations' in R. Schiattarella, ed., *New challenges for European and international business*, Vol 1, Urbino: Confindustria, 257-282 (proceedings of the Annual Conference of EIBA).
- Chesbrough, Henry (2006), *Open innovation*, Harvard, Mass.: Harvard Business School Press.
- Cohen, Wesley and Daniel Levinthal (1990), 'Absorptive capacity: A new perspective on learning and innovation', *Administrative Science Quarterly*, **35**(1), 128-152.
- Crookell, Harold and A. J. Morrison (1990), 'Subsidiary strategy in a free trade environment', *Business Quarterly*, Autumn, 33-39.
- Delany, Ed (1998), 'Strategic development of multinational subsidiaries in Ireland', in Julien Birkinshaw and Neil Hood, eds., *Multinational corporate evolution and subsidiary development*, Basingstoke: MacMillan, 239-267.

- Dhanaraj, Charles, Marjorie Lyles, H. Kevin Steensma and Lazlo Tihanyi (2004), 'Managing tacit and explicit knowledge in IJVs: The role of relational embeddedness and the impact on performance', *Journal of International Business Studies*, **35**(5), 428-442.
- Doz, Yves, José Santos and Peter Williamson (2001), *From global to metanational*, Harvard, Mass.: Harvard Business School Press.
- Egelhoff, William G., Liam Gorman and Stephen McCormick (1998), 'Using technology as a path to subsidiary development', in Julien Birkinshaw and Neil Hood, eds., *Multinational corporate evolution and subsidiary development*, Basingstoke: MacMillan, 141-161.
- Forsgren, Mats and Torben Pedersen (1998), 'Centres of excellence in multinational companies: The case of Denmark', in Julien Birkinshaw and Neil Hood, eds., *Multinational corporate evolution and subsidiary development*, Basingstoke: MacMillan, 213-238.
- Forsgren, Mats, Jan Johansson and Deo Sharma (2000), 'Development of MNC Centres of Excellence', in Ulf Holm and Torben Pedersen, eds., *The Emergence and Impact of MNC Centres of Excellence – A Subsidiary Perspective*, London: Macmillan, 45-67.
- Forsgren, Mats, C. Mathisen and Torben Pedersen (2000), 'Competence creation and recognition – A case study', in Ulf Holm and Torben Pedersen, eds., *The Emergence and Impact of MNC Centres of Excellence – A Subsidiary Perspective*, London: Macmillan, 167-184.
- Foss, Nicolai J. and Torben Pedersen (2002), 'Transferring knowledge in MNCs: The role of sources of subsidiary knowledge and organizational context', *Journal of International Management*, **8**, 49-67.
- Foss, Nicolai J. and Torben Pedersen (2004), 'Organizing knowledge processes in the multinational corporation: An introduction', *Journal of International Business Studies*, **35**(5), 340-349.
- Fratocchi, Luciano and Ulf Holm (1998), 'Centres of Excellence in international firms', in Julien Birkinshaw and Neil Hood, eds., *Multinational corporate evolution and subsidiary development*, Basingstoke: MacMillan, 189-209.
- Frost, Tony (2001), 'The geographic sources of foreign subsidiaries innovation', *Strategic Management Journal*, **22**, 101-123.
- Frost, Tony, Julien Birkinshaw and Prescott Ensign (2002), 'Centers of Excellence in multinational corporations', *Strategic Management Journal*, **23**, 997-1018.
- Garnier, G. (1982), 'Context and decision-making autonomy in the foreign affiliates of U. S. multinational corporations', *Academy of Management Journal*, **25**, 893-908.
- Gates, S. R. and W. Egelhoff (1986), 'Centralization in headquarters-subsidiary relationships', *Journal of International Business Studies*, **17**(2), 71-92.
- Ghoshal, Sumantra and Christopher Bartlett (1990), 'The multinational corporation as an interorganizational network', *Academy of Management Review*, **15**(4), 603-625.
- Grant, R. M. (1996), 'Towards a knowledge-based theory of the firm', *Strategic Management Journal*, Winter special issue, **17**, 109-122.
- Gupta, Anil K. and Vijay Govindarajan (1991), 'Knowledge flows and the structure of control within multinational corporations', *Academy of Management Review*, **16**(4), 768-792.
- Gupta, Anil K. and Vijay Govindarajan (1994), 'organizing for knowledge flows within MNCs', *International Business Review*, **3**(4), 443-457.
- Gupta, Anil K. and Vijay Govindarajan (2000), 'Knowledge flows within multinational corporations', *Strategic Management Journal*, **21**, 473-496.
- Harzing, A. W. K. (1999), *Managing the multinationals: An international study of control mechanisms*, Cheltenham: Edward Elgar.
- Hedlund, Gunnar (1984), 'A model of knowledge management and the N-form corporation', *Strategic Management Journal*, **15** (Summer Special Issue), 73-90.
- Hedlund, Gunnar (1986), 'The hypermodern MNC – An heterarchy', *Human Resource Management*, **25**(1), 9-35.
- Hersey, P. and K. H. Blanchard (1988), *Management of organizational behaviour: utilizing human resources*, Englewood Cliffs: Prentice Hall.
- Ulf Holm and Torben Pedersen, eds. (2000), *The emergence and impact of MNC Centres of Excellence*, Basingstoke: Macmillan.
- Holm, Ulf, Christine Holmstrom and Deo Sharma (2005), 'Competence development through business relationships or competitive environment? – Subsidiary impact on MNC competitive advantage', *Management International Review*, **45**(2), 197-218.
- Hult, G. T., D. J. Ketchen Jr., D. A. Griffith, B. R. Chabowski, M. K. Hamman, B. J. Dykes, W. A. Pollitte and S. T. Cavusgil (2008), 'An assessment of the measurement of performance in international business research', *Journal of International Business Studies*, **39**(6), 1064-1080.
- Inkpen, Andrew (2008), 'Knowledge transfer and international joint-ventures: The case of NUMMI and General Motors', *Strategic Management Journal*, **29**, 447-453.

- Inkpen, Andrew and Mary Crossan (1995), 'Believing is seeing: Joint-ventures and organization learning', *Journal of Management Studies*, **32**(5), 595-618.
- Jarillo, José Carlos and Jon Martinez (1990), 'Different roles for subsidiaries: the case of multinational corporations in Spain', *Strategic Management Journal*, **11**(7), 501-512.
- Johnson, William H. and John W. Medcof (2002), 'Entrepreneurial behaviour in the MNC. An extended agency theory analysis of the parent subsidiary relationship', *Int. Journal of Entrepreneurship and Innovation Management*, **2** (2/3), 186-204.
- Kanter, Rosabeth Moss (2004), *Confidence: How Winning Streaks and Losing Streaks Begin and End*, New York: Crown Business.
- Kogut, Bruce and Udo Zander (1992), 'Knowledge of the firm, combinative capabilities and the replication of technology', *Organization Science*, **3**, 383-397.
- Kogut, Bruce and Udo Zander (1993), 'Knowledge of the firm and the evolutionary theory of the multinational firms', *Journal of International Business Studies*, **24**(4), 625-645.
- Kuemmerle, Walter (1999), 'The drivers of foreign direct investment into Research and Development. An empirical investigation', *Journal of International Business Studies*, **30**(1), 1-24.
- Lu, Tzu-En, Lu-Jui Chen and Wen-Ruey Lee (2007), 'Subsidiary initiatives in subsidiary role changing in the case of the Bartlett and Ghoshal typology', *Journal of American Academy of Business*, **11** (1), 280-284
- Maidique, Modesto and Billie Jo Zirger (1985), 'The New Product Learning Cycle', *Research Policy*, **14**, pp. 299-313.
- Minbaeva, Dana (2007), 'Knowledge transfer in multinational corporations', *Management International Review*, **47**(4), 567-593.
- Moore, Karl and Julian Birkinshaw (1998), 'Managing knowledge in global service firms: Centres of Excellence', *The Academy of Management Executive*, **12**, 81-92.
- Mu, S. C., D. R. Gnyawall and D. E. Hatfield (2007), 'Foreign subsidiaries' learning from local environments: An empirical test', *Management International Review*, **47**(1), 79-102.
- Mudambi, Ram and Pietro Navarra (2004), 'Is knowledge power? Knowledge flows, subsidiary power and rent-seeking within MNCs', *Journal of International Business Studies*, **35**(5), 385-406.
- Mudambi, Ram, Susan Mudambi and Pietro Navarra (2007), 'Global innovation in MNCs: The effects of subsidiary self-determination and teamwork', *The Journal of Product Innovation Management*, **24**(5), 442-460.
- Mudambi, Ram and Torben Pedersen (2007), 'Agency theory and resource dependence theory: Complementary explanations for subsidiary power in multinational corporations', in T. Pedersen and H. Volberda, eds., *Bridging IB theories, constructs, and methods across cultures and social sciences*, Basingstoke: Palgrave-McMillan.
- Nohria, Nitin and Sumantra Ghoshal (1997), *The differentiated network – Organizing multinational corporations for value creation*, San Francisco: Jossey-Bass.
- Nonaka, Ikujiro and Hirotaka Takeuchi (1995), *The knowledge-creating company*, New York: Oxford University Press.
- Palmisano, Sam (2006), 'Multinationals have been superseded', *Financial Times*, June 12, 19.
- Pearce, Robert and Marina Papanastassiou (1999), 'Overseas R&D and the strategic evolution of multinationals: Evidence from laboratories in the U.K.', *Research Policy*, **28**(1), 23-41.
- Pearce, Robert and Ana Teresa Tavares (2002), 'On the dynamics and coexistence of multiple subsidiary roles: An investigation of multinational operations in the U.K.', in Sarianna Lundan, ed., *Network knowledge in international business*, Cheltenham. Edward Elgar, 73-90.
- Phene, Anupama and Paul Almeida (2008), 'Innovation in multinational subsidiaries: The role of knowledge assimilation and subsidiary capabilities', *Journal of Int. Business Studies*, **39** (5), 901-919.
- Picard, J. (1977), 'Factors of variance in multinational marketing control, in L. G. Mattson and F. Wiedersheim-Paul, eds., *Research on the internationalisation of business*, Uppsala, 220-232 (Proceedings of the Annual Conference of EIBA).
- Picoito, João (2005), Speech delivered at the opening session of the First Iberian International Business Conference, Porto.
- Porter, Michael E. (1990), *The competitive advantage of nations*, New York: Free Press.
- Reed, R. and R. de Fillippi (1990), 'Causal ambiguity, barriers to imitation and sustainable competitive advantage', *Academy of Management Review*, **15**(1), 88-102.
- Simonin, Bernard (1999), 'Ambiguity and the transfer of knowledge in strategic alliances', *Strategic Management Journal*, **20**, 595-623.
- Simonin, Bernard (2004), 'An empirical investigation of the process of knowledge transfer in international strategic alliances', *Journal of International Business Studies*, **35**(5), 407-427.

- Simões, Vitor Corado (1992), 'European integration and the pattern of FDI inflow in Portugal', in John Cantwell, ed., *Multinational investment in modern Europe*, Aldershot: Edward Elgar, 256-297.
- Simões, Vitor Corado (1997), *Inovação e Gestão em PME*, Lisboa: GEPE Min. Economia.
- Simões, Vitor Corado (2004), *Divestment by foreign-based companies: Founding conditions, sourcing and firm boundaries*, Paper delivered at the 30th. Conference of EIBA, Ljubljana.
- Simões, Vitor Corado (2005), 'Disinvestment by foreign-owned firms: Facts in search of a framework', in L. Cuyvers and F. De Beule, eds., *Transnational corporations and economic development: From internationalization to globalization*, Basingstoke: Palgrave Macmillan, 38-61.
- Simões, Vitor Corado and Pedro Nevado (2000), *MNE Centres of Excellence and acquisitions: Long evolutionary paths or capturing opportunities?*, Mimeo., ISEG, Technical University of Lisbon.
- Simões, Vitor Corado, Rita Biscaya and Pedro Nevado (2002), 'Subsidiary decision-making autonomy: Competences, integration and local responsiveness, in Sarianna Lundan, ed., *Network knowledge in international business*, Cheltenham: Edward Elgar, 137-166.
- Simões, Vitor Corado, Rita Biscaya, Pedro Nevado and Rui Fazendeiro (1999), *O investimento estrangeiro na indústria transformadora nacional*, CESO/CI, July.
- Szulanski, Gabriel (1996), 'Explaining internal stickiness: Impediments to the transfer of best practices within the firm', *Strategic Management Journal*, **17** (Winter special issue), 27-43.
- Szulanski, Gabriel (2000), 'The process of knowledge transfer: a diachronic analysis of stickiness', *Organizational Behaviour and Human Decision Processes*, **82**(1), 9-27.
- Taggart, James H. (1997a), 'An evaluation of integration-responsiveness framework: MNC manufacturing subsidiaries in the U. K.', *Management International Review*, **37**(4), 295-318.
- Taggart, James H. (1997b), 'Autonomy and procedural justice: a framework for evaluating subsidiary strategy', *Journal of International Business Studies*, **28**(1), 51-76.
- Taggart, James H. (1998a), 'Strategy shifts in MNC subsidiaries', *Strategic Management Journal*, **19**, 663-681.
- Taggart, James H. (1998b), 'Identification and development of strategy at subsidiary level', in Julien Birkinshaw and Neil Hood, eds., *Multinational corporate evolution and subsidiary development*, Basingstoke: MacMillan, 23-49.
- Taggart, James H. and Neil Hood (1999), 'Determinants of autonomy in multinational corporation subsidiaries', *European Management Journal*, **17**(2), 226-36.
- Tavares, Ana Teresa (2002), 'Multinational subsidiary evolution and public policy: Two tales from the European periphery', *Journal of Industry, Competition and Trade*, **2,3**, 195-213.
- Tavares, Ana Teresa (2005), 'Luta Fratricida?', *Expresso*.
- Tavares, Ana Teresa and Robert D. Pearce (2000), 'European integration and structural change in the multinational: Evidence from foreign subsidiaries operating in Portugal', in M. Hughes and J. H. Taggart, eds., *International business: European dimensions*, Basingstoke, Macmillan.
- Teece, David J. (1981), 'The market for know-how and efficient international transfer of technology', *Annals of the American Academy of Political and Social Science*, (458), 81-96.
- Teixeira, Aurora and Ana Teresa Tavares-Lehmann (2008), *Investimento directo estrangeiro, capital humano e inovação*, Porto: Vida Económica.
- Van den Bulcke, Danny and E. Halsberghe (1984), *Employment decision-making in the MNE: survey results from Belgium*, WP 32, Geneva: International Labour Office.
- Von Hippel, Eric (2005), *Democratizing Innovation*, Cambridge, Mass.: M.I.T. Press.
- White, R. E. and T. A. Poynter (1984), 'Strategies for foreign-owned subsidiaries in Canada', *Business Quarterly*, Summer, 59-69.
- Winter, Sidney G. (1987), 'Knowledge and competence as strategic assets', in D. J. Teece, ed., *The competitive challenge*, Cambridge, Mass.: Ballinger, 159-184.
- Zander, Udo and Bruce Kogut (1995), 'Knowledge and the speed of the transfer and imitation of organizational capabilities: An empirical test', *Organization Science*, **6**, 76-92.
- Zhao, Hongxin and Yadong Luo (2005), 'Antecedents of knowledge sharing with peer subsidiaries in other countries: A perspective from subsidiary managers in a foreign emerging market', *Management International Review*, **45**(1), 75-97.
- Zuzarte, Rui (2005), *Centros de Excelência em subsidiárias portuguesas de empresas multinacionais*, Master's dissertation, ISEG, Technical University of Lisbon.

