

## Multilocalisation and the Growth of Knowledge Assets in Medium-Sized Multinationals (MSMs)

Maria Rosaria Marcone<sup>1</sup> 

Received: 8 January 2015 / Accepted: 23 June 2015 /  
Published online: 7 July 2015  
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**Abstract** This work aims to investigate how international competitive strategies are based and may be in some cases actually heavily dependent on the capacity to form and enhance skills in design, engineering and production activities and on the propensity to invest more resources in research and development (R&D) activities as well as in activities that are more strictly speaking production-based (manufacturing). This study focuses on medium-sized multinationals (MSMs) that belong to the sectors of mechanics and electronics and highlights different innovation processes' approaches in the same unit of the analysed MSMs. We should draw attention to the propensity of Marche's MSMs to effectively take advantage of new process technologies and their ability to increase the innovative knowledge possessed co-evolve with planning and managing multiplant establishments on a global scale. This would mean that, for smaller businesses, the complex process of 'generation, use, acquisition and dissemination' of technological knowledge would derive mainly from internal factors and be only limited by external sources. The study is based on the empirical analysis of the most representative business cases among those analysed in the mechanical and electronic areas of the Marche Region. It creates new challenges for both theoretical treatments of the MNE, for practitioners and for policy makers.

**Keywords** R&D internationalisation · Internationalisation of production · Knowledge growth

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✉ Maria Rosaria Marcone  
m.r.marcone@univpm.it

<sup>1</sup> Polytechnic University of Marche, P.le Martelli 8, 60121 Ancona, Italy

## Introduction

Competitor identification occupies a central position in strategic management research (Peteraf and Bergen 2003; Wu and Olk 2014). Although previous research has outlined both external and internal factors that affect competitor identification, few studies examine conditions where the market and environment are volatile. Prior studies suggest that firms tend to perceive only target firms with comparable capabilities (Chen 1996). Moreover, the number of competitors perceived by a firm is positively associated with its strong customer ties. Firstly, strong customer ties provide firms with critical competitive information about the necessary market competencies. Secondly, strong customer ties, which typically involve high levels of trust and mutual forbearance, not only greatly reduce the transaction costs associated with the alliance but also promote information exchange about competitors.

The small businesses of the Marche area, in the sectors examined, even for the simple fact of having placed themselves on the international market, have inserted themselves into the processes of international growth of technological knowledge and into some forms of international marketing knowledge related to the technological content of the products/concepts that they offer (Morschett et al. 2010).

Knowledge is a key source of competitive advantage that differentiates firms' performance according to the differences in their knowledge resources, developed in manufacturing and research and development (R&D) activities. Knowledge assets are systems which can be both human and technology-based that function to manipulate knowledge resources; knowledge growth processes consist of various configurations of knowledge manipulation conducted by the research-oriented works belonging to the productive and R&D activities (Holsapple and Wu 2011). It is assumed, therefore, that the production activities abroad will be able to meet a new demand (for the company) expressed by different segments in the business markets (domestic and foreign) to the ones that are currently served.

The enterprises from the Marche Region that internationalise do not choose, as was the case in the past, to start manufacturing plants in similar contexts (countries). It seems ultimately that in medium-sized multinationals (MSMs) of the Marche, as noted in other studies for multinational enterprises (Ambos et al. 2006), the 'similarity of context'—in particular the organisational and cultural similarity—is certainly recognised as an important competitive factor and it can offer many benefits, but it does not necessarily also guarantee a transfer of more effective and dynamic know-how from the foreign site to the parent company.

We want especially to draw attention to the fact that also smaller companies that do not have the organisational and financial structures of their multinational corporations (MNCs) may be awarded a major role in global processes of growth of technological knowledge.

When the benefits of exploiting extant competencies eventually erode, firms adopt new entrepreneurial and organisational choices to explore new international competitive advantages.

This paper focuses on the impact that moving between exploitation and exploration can have on a firm's innovative performance. A common perspective is that consistent R&D investment facilitates innovation. We suggest that such transitions between exploration and exploitation are critical and are observable as significant strategic

changes in a firm's choices regarding R&D investments that occur within relatively small time windows.

As far as the methodology adopted in the development of the research is concerned, I would like to underline the fact that, during the different phases, both inductive and deductive methodologies are used, principally adopting a 'positive-interpretative' approach. In contrast to many extant studies of MSMs, both survey and objectively measured data are combined, and because the secondary data collected contain both resource-level (input) data and subsequent 1-year financial data, a higher level of confidence may be attributable to our findings.

As far as the structure of this work is concerned, in the first part, a deeper analysis of the international managerial literature is carried out, in order to place the study within the framework of the main research threads. After an overview of the growing literature on internal and external R&D strategies of firms, some hypotheses for research that we are studying are also formulated. These hypotheses concern the most representative business cases, among those analysed, in the mechanical and electronic sectors, that represent a privileged research laboratory. Following this, the results that emerge from the empirical research are highlighted. In essence, they regard the strategies of internationalisation of production and R&D activities.

## Theoretical Framework

Since absorptive capacity (AC) is the result of cumulatively path-dependent R&D investments by a firm, prior studies using R&D expenditures as a measure of AC investigate the relationship between AC and firm innovation (Cohen and Levinthal 1990; Cockburn et al. 2003; Rothaermel and Alexandre 2009). However, a query of whether R&D expenditures reflect AC arises if the process school of AC becomes holistic and generic. R&D expenditures may not fully capture the meaning of AC process since monetary inputs cannot represent a firm's process of AC. R&D intensity (R&D expenditure/sales) as the measure for AC reflects a firm's overall capacity to recognise, assimilate, exploit, explore, transform, and acquire external knowledge (Cohen and Levinthal 1990; Lane et al. 2006; Todorova and Durisin 2007; Zahra and George 2002), since these prior studies believe that R&D employees may be essentially a subset of R&D expenditures.

Medium-sized enterprises, which were able for some time to generate continuous innovation activities in their original sites (Marche Region), in order to increase the market value of their products, in this respect have reached a saturation point where the potential supply exceeds nationwide demand. It was no longer possible to continue to engage and experiment with such innovative processes in the domestic plants that resulted in being efficient only if accompanied by the planning of new production plants in foreign markets. It is the leap than when initiating strategies of internationalisation of production was based on the expansion of production scale on it to spread the cost of the domestic business R&D.

One should draw attention to the fact that the propensity of Marche's MSMs to effectively take advantage of new process technologies and their ability to increase the innovative knowledge possessed co-evolve with planning and managing multiplant establishments on a global scale. In this sense, it has been affirmed that knowledge-

intensive resource (KIR) is the ability of an enterprise to leverage existing knowledge through continuous learning to create new knowledge or an exploratory foreign investment (subsidiary) to enhance innovativeness by means of extending the existing area of expertise and searching for new organisational direction (Holmqvist 2004; Rothaermel and Alexandre 2009). Many studies further explained that KIR refers not only to the ability to acquire knowledge and information but also to the organisational capability of protecting knowledge and information in order to encourage staff to use this ability as a tool to work more efficiently (Tseng 2014). Chen and Fong (2012) stated that the root of KIR lies in the high-level knowledge-based routines that are usually driven by the learning process that is conducted through knowledge processes. They further elaborated the firm condition that these processes based on their governance mechanisms and history; hence, path dependencies are generated.

Some interesting studies have investigated the knowledge flows that spread from the foreign site to other units (enterprises) of multinationals (Osterloh and Frey 2000; Mudambi and Navarra 2004). Interesting contributions on the transfer of knowledge between subsidiary and parent companies have been provided by many authors (Subramaniam and Watson 2006). It must not be forgotten that the transfer process ('home-based augmenting' (HBA)) is undoubtedly influenced, first, by the decision-making power enjoyed by managers who are responsible for managing the foreign subsidiary (Hakanson and Nobel 2000) and, secondly, the internationalised activities (Mudambi and Navarra 2004; Haas and Hansern 2005).

Hypothesis 1. Knowledge governance mechanisms and knowledge processes (e.g. creating, retaining and sharing knowledge) are the organisational attributes that reflect the elements of KIR.

Management research notes that stable investments in R&D enable firms to develop sustainable competitive advantages and that productive R&D is the result of knowledge accumulation that is based on steady investment over time (Mudambi and Swift 2014).

As regards the location of some of the research activities which must necessarily be relocated in order to adapt the production processes and the products to local needs, interesting contributions were provided by Cantwell and Mudambi (2005). They argue that the role of research in a foreign production site (subsidiary) is competence exploiting; this role is called 'home-base exploiting' by Kuemmerle (1999).

It is interesting to note that the internationalisation strategies of research and development, which in this study constitute specific forms of 'FDI technology sourcing', have received in recent years, increasing attention from scholars. Recent contributions have appeared in international management literature, analysing the phenomenon of internationalisation that has affected the processes of knowledge creation (Le Bas and Sierra 2002; Driffield et al. 2004; Buckley and Hashai 2005). Some interesting studies have investigated the knowledge flows that spread from the foreign site to other units (enterprises) of multinationals (Gupta and Govindarajan 2000; Osterloh and Frey 2000; Mudambi and Navarra 2004). Many of these studies seem to support more traditional settings, suggesting that the relocation of R&D is more prevalent towards the industrialised countries and is less common towards low-cost nations (Hirsh 1976; Dunning 1988; Johanson and Vahlne 2003).

Hypothesis 2. Research activities must be relocated in order to adapt the production processes and products to local users.

Institutional environments exert significant effects on organisational behaviour, structure, strategy, governance, and process. To gain competitive advantage, managers are striving for legitimacy while maintaining efficiency. In line with this thinking, we propose the developmental process of institution-driven and legitimacy-embedded efficiency and emphasise the confluence of legitimacy and efficiency in the context of international business marketing relationship (Yang et al. 2014). To develop and enrich institutional theory in international business marketing, scholars should also address several critical issues related to methodology. Borrowing a term coined by Ostrom (2010), institutional polycentrism, which includes institutional multiplicity, institutional configuration, and institutional context specificity, Batjargal et al. (2013) examine the effect of this concept on new venture growth and find that weaker and more inefficient institutions will enhance the positive effect of structural holes on new venture growth, as personal relationships may align otherwise disconnected regional operations.

The literature on interorganisational relationship also suggests that, when firms closely cooperate with partners, such as through joint R&D (Hoang and Rothaermel 2005), they must develop diverse governance mechanisms, such as contract, trust, norms, or ownership sharing, to coordinate the transfer of complex knowledge and minimise the opportunistic behaviour of their partners. In other words, when contractual commitment is present, firms are able to guard more readily against opportunistic behaviour (Williamson 1985). Behavioural uncertainty is reduced. Thus, firms feel more comfortable to conduct extensive information sharing, since the risk of the exchanged information being abused by opportunistic behaviours is greatly reduced.

Transaction cost economics (TCE) argues that, when facing high market uncertainty, firms closely coordinate their activities and reinforce their relationship with partners (Pfeffer and Salancik 1978). The higher the uncertainty in the task environment of marketing channel dyads, the greater the efforts towards increasing the level of vertical coordination within the dyad. This is because organisations facing uncertainty would naturally tend to strive for homogeneity and because coordination provides flexibility for them to cope with the uncertainty (Poppo and Zenger 2002).

The literature has produced interesting contributions on the study of foreign expansion strategy from the perspective of portfolio diversification (Rugman 1979; Bowman 1980; Kim et al. 1993; Hitt et al. 1997; Zahra et al. 2000). It also points out that among the reasons for foreign direct investment, Hymer expressly mentions the choice to diversify products, markets, and location of production.

Management research notes that productive R&D is the result of knowledge accumulation that is based on steady investment over time. While stability in R&D spending is often beneficial (Kor and Mahoney 2005), there are circumstances when the firm's interests are best served by undertaking sharp changes in its R&D path trajectory (Mudambi and Swift 2014).

Hypothesis 3. To diversify the portfolio of the technological trajectory is a motive for international business portfolio expansion.

Although an increasing number of studies apply, measure, or extend the concept of AC,<sup>1</sup> some concerns about the exploitation of the concept emerge accordingly since

<sup>1</sup> Cohen and Levinthal (1990) define AC as a firm's ability to value, assimilate, and utilize new external knowledge.

researchers fail to specify the underlying assumptions of the concept. Thus, identifying antecedents of AC, including managerial-entrepreneurial antecedents (although within entrepreneurial group) (Zahra and George 2002; Lenox and King 2004; Andersen and Foss 2005) or interorganisational antecedents (Coviello and McAuley 1999; Westhead et al. 2001; Lane et al. 2006), becomes one of the important tasks for management scholars. As research on corporate entrepreneurial activity has evolved, numerous researchers have acknowledged the importance of internal organisational antecedents to promoting and supporting innovation performance (Covin and Slevin 1991; Kuratko et al. 2005; Ireland et al. 2009).

Despite the growing interest in exploring the antecedents of AC, few of them capture the ‘absorptive capacity process’.

Corporate entrepreneurship refers to the pursuit of entrepreneurial actions and initiatives that transform the established organisation through strategic renewal processes and extend the firm’s scope of operations into new domains.

Corporate entrepreneurship strategy is hard to create and even harder to perpetuate in organisations due to a failure to appreciate how operation control considerations work in conjunction with the drivers of corporate entrepreneurship to facilitate innovation performance. However, managers and workers at all levels of the organisation can be instrumental in fostering entrepreneurial activity leading to productive innovation results.

In the governance of corporate ‘entrepreneurship-operations management interface’, we suggest the need to balance the facilitation and the control of innovation. In fact, it is increasingly important to give due weight to the interaction that has been consolidating in recent years between the entrepreneur and organisational structures in their theoretical propensity to innovate as regards the evolution and expansion of concrete production on an international scale. The interaction derives from the actions of areas of management that have evaluated all possible developments in advance.

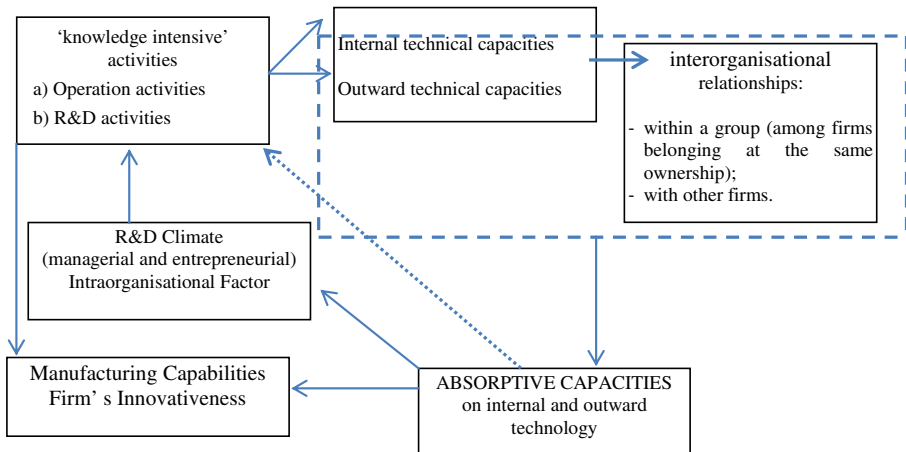
Hypothesis 4. ‘Entrepreneurship-operations management interface’ facilitates operational innovation on an international scale.

As shown in the dotted line of Fig. 1, it is actually the outward technical capacities that appear to be particularly relevant to the development of international competitive strategies of more modestly sized firms. The management implications (managerial) areas of activities such as operations and R&D, however, have rarely been an object of investigation in the field of managerial studies.

## Research Methodology

### Methodology

As far as the methodology adopted in the development of the research is concerned, it should be underlined that, during the different phases, both inductive and deductive methodologies are used, principally adopting a ‘positive-interpretative’ approach. In contrast to many extant studies of MSMs, both survey and objectively measured data are combined, and because the secondary data collected contain both resource-level (input) data and subsequent 1-year financial data, a higher level of confidence may be attributable to our findings. An interpretative, qualitative approach—utilising selected



**Fig. 1** Theoretical framework. Source: our elaboration

multi-case study interviews (Yin 2003; Eisenhardt and Graebner 2007) such as the primary data collection method—is chosen because it helps to navigate and understand the complex issues that are associated with the data quality concept and its relation to the factors involving managerial practices to implement facilities in design and marketing activities. Case studies investigate the issue within a real-life context, drawing on the reviews of a number of sources, and provide the means to review theory and practice iteratively. Multiple cases ensure that common patterns are identified rather than generalised from what might be change occurrences (Eisenhardt 1989; Janesick 2000).

The qualitative case study has been defined as an empirical piece of research that primarily uses contextually rich data from bounded real-world settings to investigate a focused phenomenon (Meredith 1998; Stuart et al. 2002; Eisenhardt and Graebner 2007).

To reduce any potential sources of bias, multiple data sources were used (multiple interviews, review of internal documents, e-mails, etc.) to minimise interpretative problems. In-depth interviews and data collection were performed over a 6-year period (from 2008 to 2013).

We have adopted several data sources: semi-structured interviews (the interview tool is updated based on emerging data), observations (plant tours and attendance at meetings), and archival sources (documents, production and marketing statistics, etc.).

This study, surrounding the relationship-building approach and the international marketing strategies, adopts a multiphase methodology. It is divided into research stages of pilot investigation and empirical model validation, conducted in sequential order during a multiyear period. Such an arrangement helps to integrate and reconfigure a variant view in relevant studies, proposing a framework to be verified in the samples representing different fields of the firm. The pilot investigation phase, comprising an initial exploration and small-scale survey, entails the conceptual framework of relationship building in international supply chains. The empirical model validation phase, using data obtained from wider surveys, completes the empirical verification of new cycles of international business for the management of international strategies.



## Preliminary Interview Protocol

Data were collected through 40 semi-structured questionnaires, 45 to 90-min interviews with leaders and participants from all the functional areas involved (marketing and product managers, entrepreneurs and operational workers) in the process of “design-engineering-production” of each order.

To assess these orientations, we explicitly asked interviewees about their incentives, goals, internal work in processes, and relationships to other actors and functional areas. Regarding interview protocol, given the nature of the research, the interviewees were not required to stay within the standard questions: an interviewee who seemed to be exploring a fruitful avenue was permitted to continue in that direction. This semi-structured protocol changed over time as each subsequent interview was used to triangulate the responses from previous interviews and expanded the list of questions as we uncovered more elements of the planning process. These continuous expansion and improvement of the protocol after each interview are a normal part of the process of grounded theory development (Meredith 1998; Stuart et al. 2002; Eisenhardt and Graebner 2007).

Finally, part of the protocol also included ‘T test analysis’, where we highlighted the differences regarding the average variations for every couple of groups (see [Appendix A](#)).

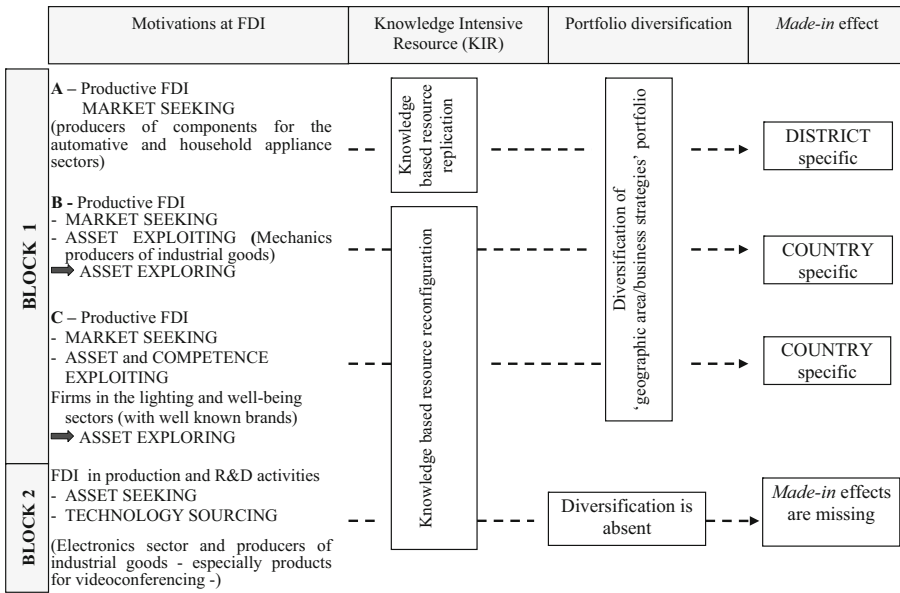
## Productive and R&D Internationalisation Strategies

### The Basic Motivations for Strategies Involving the Internationalisation of Production and R&D

The international development strategies of the firms of the sample investigated are the result of various motivations that are illustrated in Fig. 2, where companies are grouped into two blocks.

**Block 1** The companies belonging to the first block are those which undertake internationalisation strategies in contexts, in foreign markets, in which the main pull factor is the size of the demand (market seeking strategies). The reason why foreign direct investment is adopted more than any other strategy is due to the desire to take advantage of the growth opportunities offered by the demand that is manifesting itself in the international markets. Thanks to this investment, the firm is put in a position to serve the emerging market segments, the so-called additional markets, which could not be satisfied simply by exporting output normally produced in the country of origin and intended for the markets currently served. This opportunity is presented to companies that produce goods for durable use with a strong brand (firms of type B), for which foreign direct investment is the most suitable and pretty much the only viable, profitable way to produce more and different lines of product intended for the segments of the market in which their products are required at the lower price.





**Fig. 2** Productive and R&D internationalisation strategies: motivations, competitive advantages and 'made-in' effects. Source: our elaboration

A peculiar and emerging case of foreign direct investment that subcontractors of the Marche Region have to face (business type A in Fig. 2) is the one in which the usual industrial customers, from the Marches or outside the region, require new production plants, while maintaining their production facilities in Italy and the newly industrialised European countries, in which they are moving their plants (especially the field of home appliances and the automotive sector).

We have to underline how exceptional the behaviour of type A MSMs is internationalising, by taking part in a synchronous process of internationalising the business of the customers, without having themselves played any role in the previous step by step process of international growth of the customers and skipping all the steps that are normally dealt with in the internationalisation process.

If we analyse the different types of strategic business plan of the first block (Fig. 2), we can see that the paths of the international growth of companies B and C induce them to move some activities of applied research inside the overseas production in order to adapt the process to the prevailing mode of production in enterprises of the target country markets and to adapt the technical and functional characteristics of the product that suits the needs of local users.

The companies also make foreign investments of the R&D *asset-exploiting* type: technological resources owned in the domestic plants are used in order to adapt the production system to local needs and to offer suitable products for local use and consumption. Such activity is also called *home-base exploiting* (Kuemmerle 1999) or *competence exploiting* (Cantwell and Mudambi 2005).

There is no doubt that the success of international operations carried out by these firms (companies B and C type) strongly depends on the ability to exploit these technological advantages accrued or settled in the plants of the country of origin. It is a sort of ‘implied internationalisation’ of R&D, since it is carried out in a decentralised manner, in foreign manufacturing sites, in order to modify the process technologies, in order to adapt the characteristics of the product to the need for sales and consumption in force in the foreign markets. We want to especially emphasise the fact that there is not a straightforward replication of R&D carried out by MSMs in the Marche.

These developments can seriously undermine the value of the firm’s existing competencies, forcing it to explore new ways to create and maintain competitive advantage. In doing so, they drastically overhaul their R&D portfolio, moving from exploitative R&D-based activities to more exploratory ones.

As seen, the methods that lead companies of type A and type C to enter foreign markets are fundamentally different: type C businesses enter as producers in markets that are subject to international competition; however, their aim is to serve the additional market that draws them to the foreign country. It is assumed, therefore, that the production activities abroad will be able to meet a new demand (for the company) expressed by different segments in the business markets (domestic and foreign) to the ones that are currently served. For business type A, the ‘additional market’ leads to a form of ‘conditioned’ internationalisation that has to be dealt with, however, to anticipate and possibly discourage competition from low-cost companies that would replace them (referring to C). These companies used to markets characterised by forms of monopolistic competition are forced to operate even under highly competitive market structures.

**Block 2** In this grouping, one can observe MSMs that have planned production investments overseas in order to compensate for the lack of technological capabilities and, ultimately, in order to pursue asset-seeking objectives. Foreign investments are made in countries where the US and European multinational companies have recently located facilities dedicated to research; in these laboratories, existing technologies have been improved and leading-edge technologies have been developed. The claim made by Cantwell and Mudambi (2005) is relevant to the internationalisation strategies mentioned in this block. This study makes a distinction between competence exploiting and creating, and it has similarities with the work of March (1991, 2006); Benner and Tushman (2003) and other authors of the theory of organisational learning, in identifying activities of exploitation and exploration (Kuo and Li 2003; Martin and Salomon 2003; Wang et al. 2009).

One ‘internal’ reason that may push the company towards international expansion is based on the search for new sources of competitive advantage that are effective in strengthening its competitive position both in the home market and in the international context in which it has operated for some time.

This motivation influences the choices for international growth of companies that for some time have viewed their competitive strategy from an international perspective and are thereby provided with sophisticated skills of analysis and evaluation of the international scenario. The search for new competitive advantages compels these companies to sell abroad (mainly research and production) or to establish business relationships with foreign suppliers. They do not diversify and the ‘made in’ effect is absent.

The empirical evidence on international production activities carried out by small to medium-sized firms with asset-seeking goals and, more precisely, of a technology sourcing type highlights how such firms are attracted to regions where there is something to learn and there are local sources of knowledge, even in those cases in which there are technological advantages (relative) in the same fields in which local companies are specialised.

Drawing on the missing expertise wherever it is available, it appears that some SMEs limited themselves to research and absorbing the knowledge settled in foreign contexts, while others, interacting with economic actors, research institutes, universities of those countries' markets, develop new skills (*asset augmenting*).

It should be noted that the internationalisation strategies may, in the first place, have a positive effect within the domestic premises, promoting a qualified increase of possessed skills (*asset exploiting*) and furthermore increasing the knowledge of some local economies, allowing their redevelopment and repositioning in the international subcontracting system.

However, since almost all the domestic firms do not have a sufficiently developed organisational structure, the exchange of information between the headquarters and the foreign plants is not as developed as would be desirable. They are not equipped with a communication system that guarantees the exchange of information between the national and foreign organisational structure. In addition, access to sources of knowledge outside the company is not left autonomously to the management of the foreign establishment but is guided and filtered through the knowledge possessed by the operators (managers and heads of department) of the domestic plant.

In these firms, drastic changes in R&D expenditures within small time windows are consistent with the firm's managers recognising the need to change the firm's R&D international strategic choices.

### **The Businesses Strategy Diversification**

The enterprises from the Marche Region that internationalise do not choose, as was the case in the past, to start manufacturing plants in similar contexts (countries). It seems ultimately that in MSMs of the Marche, as noted in other studies for multinational enterprises (Ambos et al. 2006), the 'similarity of context'—in particular the organisational and cultural similarity—is certainly recognised as an important competitive factor and it can offer many benefits, but it does not necessarily also guarantee a transfer of more effective and dynamic know-how from the foreign site to the parent company.

Following the empirical results obtained from the survey, it is clear that among the motives for international business expansion, there is a need to diversify the portfolio of the foreign markets served and the business portfolio in which they operate.

It is believed, in short, that a presence in a variety of geographical areas is an intangible asset of the company as it provides a greater opportunity to gain that complex mix of skills required to compete successfully at an international level.

Nor, must we forget that expansion abroad, with the aim of diversifying the foreign markets in which the products are sold, permits the expansion of its made-

in effect, which represents the tradition and reputation of the geographical area of origin. This is particularly relevant for firms in the first block. It can be noted in this regard that the companies enjoy the benefits of type A district of origin, consisting of the ability to introduce technical and productive innovation that is recognised in the international arena. The other types of firms (B and C) are taking advantage of the ‘country of origin’ effects, represented by the ability to innovate products and processes, the propensity to be the first mover in innovative processes of the sectors to which they belong, the attitude demonstrated in reviewing the design of the product to allow improved aesthetic lines in the employment conditions, as well as the possession of patents.

### Headquarter-Subsidiary Entrepreneurial Relationships

In the pursuit of such goals, for both large and small enterprises, the multinational strategy is common in terms of the issues, the risks and the successes. Although they differ in terms of their proprietary models and organisational and managerial strategy, in practice, they face the same identical problems. For example, there are problems in identifying and assessing the opportunities offered by multinational strategies and in finding the most appropriate financial and organisational resources. The internationalisation strategy based on production investment abroad allows a lean management of the specific resources that belong to companies (domestic and foreign-owned firms) and can be found in various locations.

Product market and technological innovation have long been known to contribute to firm success. Correspondingly, top-level managers are increasingly recognising the need to respond to the entrepreneurial imperatives created by their competitive landscapes. However, managers at all levels of the organisation can be instrumental in fostering entrepreneurial activity leading to productive innovation results (Kuratko et al. 2005; Hornsby et al. 2009; Ireland et al. 2009). Recognising the role of an organisation’s broad membership in the perpetuation of innovation, the concept of corporate entrepreneurship-as-strategy represents a really entrepreneurial orientation and an entrepreneurial opportunity.

The support and the experience of ‘expatriate entrepreneur’ (a member or owner family nucleus) senior management in entrepreneurial activities in subsidiary are more and more important in creating and stimulating the organisational environment for new business ideas and practices. Naturally, the relationship between entrepreneurial orientation and the development of capabilities requires the constant rebuilding of businesses and processes in a continuous and emerging manner.

It has recently been suggested that control can produce trust when not denying or eliminating the other agents. However, many studies highlight how controls which restrain the freedom of others may be compatible with trust. Control activities explained by environmental risks rather than relational risks can seemingly restrain the other’s freedom of action without a negative impact on trust (Hagedoorn and Duysters 2002; Huemer et al. 2009; Goodale et al. 2011). In particular, both formal forms of behaviour control, output control or socialisation processes can be regarded as sources of information

used to support the initiatives taken, with the aim of taking advantage of business opportunities, even with partner auxiliaries, rather than being used to contrast strategic initiatives abroad (it is even considered to represent an attack/as being offensive). Trust can be viewed as an appropriate mechanism to facilitate the adaptation process.

## Concluding Observations, Limitations and Further Interests of Research

MSMs, when they establish themselves in contexts (foreign markets) which can lay claim to significant location advantages, nurture their specific expertise, absorbing the location advantages typical of the place. The businesses observed, by the mere fact of working abroad, increase their technological assets, however, which are then also absorbed by the domestic firm.

In all cases, the expansion of production abroad becomes an option only if it is certain that this strategic choice will lead to a real opportunity for growth in new and very different geographical areas from the original ones (or domestic ones). This option must be carefully thought out because such an action is a source of particularly complex problems that require that business owners and managers have the ability to identify and apply sophisticated techniques of analysis and evaluation, resulting in streamlined and highly participatory decision-making processes, which will no longer be ‘guided’ or driven by the intuition of the strategic management or the single entrepreneur.

Knowledge governance mechanisms and knowledge processes (e.g. creating, retaining and sharing knowledge) are the organisational attributes that reflect the elements of KIR. Deliberate learning is embedded in the knowledge processes allowing the firm to continually reconfigure knowledge-based resources and routines in order to provide responses or even to initiate changes in a market. Knowledge processes are enabled through conducive governance mechanisms so that the firm is able to configure more effectively.

This would mean that, for smaller businesses, the complex process of ‘generation, use, acquisition and dissemination’ of technological knowledge would derive mainly from internal factors and be only limited by external sources. These phenomena (generation, use, acquisition and diffusion), being specific to the firm, manifest themselves differently from company to company: they are not, in practice, fully transferable by the foreign (subsidiary) to the original site. It might instead be more easily transferable from the parent company to a foreign partner with whom management contracts have been agreed upon (lateral knowledge transfer). Only in this case will the parent company, in addition to assuming the role of ‘transfer creator’, also acquire technology creation ability (Cantwell 2001). The behaviour of companies that consider research as being applied only to the implementation of new production processes and the obtaining of new products is therefore erroneous.

The firms analysed engage in research and development to create advantages and increase firm value. Yet, managing this R&D process is challenging as it involves uncertainty both about technological trajectories and international business-market opportunities. Thus, it may be difficult for firms to change

their R&D strategic choices over time because it is difficult to gather reliable information with which to judge the prospects of their R&D portfolio.

It should be noted that companies go abroad, losing the characteristics of district enterprises and end up ‘multiplying’ the difficulty of identifying the competitors, since markets are volatile and turbulent.

The current paper investigates empirically the relation between relatively radical changes (radical for medium-sized firms) in strategic R&D firm choices occurring within small time windows and an evaluation of the extent of the firm’s exploratory knowledge activity.

This study examines how the international orientation of the owner’s entrepreneurial team influences perceptions of environmental uncertainty and how these perceptions impact international strategic decisions, in particular regarding ownership stakes taken in foreign plant projects and in foreign acquisitions.

We find also that the relative additional information gained through strong customer ties is likely to be greater for firms with a technological advantage than for firms who do not possess such an advantage. This situation may shield a firm’s attention to potential competitors that currently do not possess comparable technological capabilities. This is particularly critical if these firms compete in a high-velocity market.

In the current economic and competitive context, one can see that the competitive advantage (and specialisation) of Italian subcontractors, in the international context, is based on the ability to perform, at a cost that is still today competitive—the complete cycle of ‘design-engineering-production’.

It is a form of specialisation that is not based on cost advantages, resulting from the attainment of traditional economies of scale. The production capacity (in the individual departments) is also less than that of foreign companies, which operate in the same markets of international supply. The market opportunities for Italian MSMs therefore are derived from the adoption of flexible manufacturing, whose performance can also improve significantly, only if other business functions (design, product engineering and orders; sales area) are managed in a flexible way.

One thing that is clear from the investigation is that creativity in planning and craftsmanship industrialisation and production constitute, from the economic point of view, real assets that have an economic value in transactions.

The empirical evidence on the activities of asset-seeking multinational enterprises (MNEs) is more recent and has not yet led to conclusive results. Even more significant is the fact that this seems to be true both in the case of MNEs, in specific technical fields, characterised by a disadvantageous situation regarding the technological assets of the companies in that country, and in the case of MNEs that have technological advantages in the same fields in which local companies are specialised. A common perspective is that consistent R&D investment facilitates innovation. Many pieces of research affirm that infrequent, consistent increases in R&D expenditure may be interpreted as evidence that a firm is moving from periods of exploitation to one of exploration. In this paper, we do not demonstrate how compact, significant changes in R&D spending are beneficial to the firm, regardless of the path trajectory direction of the change.

The current paper does not investigate empirically the relation between relatively radical changes in strategic R&D expenditure occurring within small

time windows and an evaluation of the impact on firm innovative performance.

In further pieces of research, we would like also examine the relation between the specific strategic form of R&D expenditure and multiple proxies of R&D success and firm performance (new product releases and stock-market-based firm performance).

## Appendix A

### T Test Analysis

We realised the ‘t-test analysis’, where we highlighted the differences regarding the average variations for every couple of groups (see tables below).

**Table 1** Clusterization of the analysed firms, based on the internationalisation strategies highlighted in Fig. 2

Block 1	Firm A type	Group 1
	Firm B type	Group 2
	Firm C type	Group 3
Block 2		Group 4

**Table 2** *p* value (significance)

	Sales Italy			Export sales			R&D/Invested capital		
	2008	2013	Var.	2008	2013	Var.	2008	2013	Var.
G <sub>1</sub> –G <sub>2</sub>	0.8423	0.3093	0.0523	0.3129	0.9805	0.2976	0.2916	0.2641	0.3969
G <sub>1</sub> –G <sub>3</sub>	0.5639	0.1812	0.0028	0.0957	0.0506	0.5187	0.7838	0.6964	0.2663
G <sub>1</sub> –G <sub>4</sub>	0.2557	0.6319	0.0407	0.5069	0.3116	0.9832	0.0497	0.1594	0.3099
G <sub>2</sub> –G <sub>3</sub>	0.6461	0.6464	0.4385	0.1213	0.0271	0.3307	0.3355	0.2074	0.3378
G <sub>2</sub> –G <sub>4</sub>	0.2260	0.1977	0.6466	0.1488	0.3257	0.3385	0.4444	0.9763	0.3858
G <sub>3</sub> –G <sub>4</sub>	0.1658	0.1262	0.0396	0.0587	0.0207	0.4670	0.0765	0.0914	0.9602

*p* value >0.10, the difference is not significant; *p* value <0.10, the difference is significant

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