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# Editorial Board

*Editorial Message for the Special Issue*

# Introduction to Special Edition on Subject of "Internationalization of Innovative SMEs"

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Over the course of 10 papers on the subject, the aim of this special edition is to examine the relationship dynamic between innovation and internationalization for small to medium-size businesses. The relationship between the two is mutually beneficial when penetration of new overseas markets takes place as a result of the competitive advantage generated by innovation. In the same way, internationalization facilitates the optimization of innovative strategy generating either an accelerated return on research and development costs or access to overseas technological resources. To combine both domestic and overseas resources and competencies is, in effect, likely to generate an additional technological advantage. Seen from this perspective, the internationalization process can be said to be a catalyst for innovation. However, the consumption of resources and the need for expertise generated by the simultaneous pursuit of these two development strategies can lead to conflict and constraint for an SME in terms of allocation of both resources and competencies. The relationship between innovation and internationalization can therefore become antagonistic.

Publication of this special edition follows a conference dedicated to the subject of internationalization of innovative SMEs which took place in Poitiers, France on 8th and 9th December 2011. The aim of the conference [organized by two Business Schools - ESCEM (ESCEM School of Business and Management) and EM Normandie (Normandy Business School) - in collaboration with various other business sector institutions] was to respond to the following questions:

- *How does a PME manage to simultaneously combine strategic technological development with increased internationalization of its business activities?*

- *What type of intra-organizational or inter-organizational resources and competencies are used to solve the inherent conflict between innovation and internationalization?*

In relation to the first question, studies highlight the fact that co-operative strategies between small to medium sized companies constitute an effective way of reducing resource-based constraints in the context of innovation and internationalization. As a case in point, research into different forms of joint export practices (co-operation with big business ventures – SMEs in the overseas market, export consortiums, distribution agreements with local partners, joint-ventures, shared arrangements with clients, suppliers, competitors etc.) is an interesting area in its own right which deserves further examination. The management practices involved in each of these different forms of alliance also deserve further analysis – for instance, the role of confidentiality, contractual relations, development of a shared structure etc.

In relation to the second question, the scale of internal resources and competencies which an innovative SME has at its disposal is highlighted. In effect, the internationalization process is considered by some academics to be an entirely intra-organizational process in view of the creative and risk-taking factors which the endeavor presupposes. The ability of an SME to mobilize and rally its staff to the task of simultaneous innovation and internationalization

becomes an indicator of a company's ability to find a competitive edge. Human resource policy therefore has an absolutely fundamental part to play in the development of aptitude and behaviors internal to an organization which impact upon the process of innovation and internationalization.

The articles selected for publication in this special edition bring interesting perspectives to the three following important areas of research:

- *What is the nature of the relationship between innovation and internationalization for an SME? Is the relationship dynamic between the two beneficial or does it cause conflict?*

- *What role does inter-organizational co-operation play in the implementation of these two strategies?*

- *What strategies for growth need to be implemented in order to achieve the dual goals of innovation and internationalization?*

**The Nature of the Relationship Dynamic between Innovation and Internationalization**

The article by Lecerf deals with the financial implications for SMEs of pursuing a strategy of innovation and internationalization simultaneously. The author believes that the pursuit of a mixture of strategies is both beneficial and problematic and he highlights the importance of technological resources in the implementation of such a strategy. Finally, he suggests the integration of public finance initiatives for innovation and internationalization in the SME sector.

Louart and Martin examine a variety of scenarios (based on 16 case studies) to explore the nature of the dynamic between innovation and internationalization. According to the authors, many SMEs go through successive stages in which the balance between internationalization and innovation shifts over time. The companies examined demonstrate how the process of internationalization uses a mixture (technological and managerial) of innovation devices in complex combinations, depending on the type of company involved, the operational context and their business trajectory.

Avallone and Chédor apply a macro-economic approach to their study of the impact of innovation upon internationalization. Their study deals with OECD characteristics connected to the global knowledge market or the global technology industry. The authors conclude that technological profiles of OECD countries impact on technological trade flows. With the exception of characteristics of some countries, it would appear that leaders in R&D are quite active in terms of both technological imports and exports.

**The Role of Inter-organizational Co-operation**

The article by Piispanen and Kajanus emphasizes the importance for SMEs of inter-organizational co-operation in the implementation of innovation strategy. The results suggest that there is significant underuse of the resources on offer in universities and other public research institutions. The choice of knowledge sources can be attributed to the varying abilities of firms and network partners (consumers, universities etc.) to create and utilize (to exploit and explore) respective innovation-enhancing knowledge.

Bueno Merino and Grandval analyse the strategic issues involved in partnerships between innovative SMEs and MNEs in the overseas industrial export sector. On the one hand, their research highlights co-marketing practices which help bring about accelerated market penetration and understanding of a new foreign market for the SME. On the other hand, it stresses the importance for the MNEs of developing sustainable management of partnership resources in order to rapidly cover new market needs which now include the additional products supplied by small innovative firms.

Lesage and Ronteau demonstrate the importance of developing business networks in the context of internationalization and innovation. As the entrepreneur involves himself in social networks, he gets access to resources, which reveal his proactive competencies and in return extend his network. The Globalization process based on continuous innovation of Small and Medium-sized Enterprises (SME) can be viewed as the result of a strategic trial and error process, in which the entrepreneur plays a critical part.

Karjalainen and Soparnot focus their examination on the question of co-operation in the context of a multiculturalworkplace. This study therefore focuses more on relationships which are internal to the organization or interpersonal in nature. Their paper proposes an interpersonal co-operation model developed and used firstly in a mono-cultural working environment. It is then applied to an intercultural organization in order to develop a cross-cultural model for co-operation. The model suggests that interpersonal co-operation is a dual process and that it is based on both a political dimension and an identification dimension. Based on an empirical research method, the paper presents the application of the model through an inter-site case study including 30 interviews conducted in an international company amongst 10 different nationalities. Moreover, the case study stresses that the political

dimension of the model is not relevant in an intercultural context because the identification dimension prevails.

**Strategies for Growth**

The article by Fadil invites the reader to consider the impact of Stock Exchange listings upon growth for SMEs. The empirical study shows an overall positive development of turnover, especially internationally. SMEs seem to focus on external growth at the expense of internal growth and short-term investment in R&D.

Meier, Saulquin and Schier consider the various forms and strategic options which are developed and then deployed when a company of any size merges with a medium-sized technological company/in the technology sector, with a view to understanding what outcomes are involved. The aim of this research is to show how these strategic manoeuvers operate, using a multi-criteria analysis chart which includes variables such as the size of the company, the level of participation, the nature of the subject specialism involved, the duration of transactions and value ratios.

Finally, this special edition concludes with an article by Jourdan, Meier, Paccito and Soparnot which is a Europe-wide study of the experiences encountered in the current economic crisis and the comparative ability of businesses to deal with and overcome difficulties. The authors demonstrate the decisive role played in this by innovation. Despite the difficulties it has caused, it would appear that the economic crisis presents a fantastic opportunity to rethink current working practices, management of social capital and thus to see innovation as a important lever to help overcome difficulties and economic crisis.

# Contents

# Internationalization and Innovation: The Effects of a Strategy Mix on the Economic Performance of French SMEs

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**Abstract**

A growing body of literature has studied innovation and internationalization as essential competitiveness strategies. Small and medium-sized enterprises (SMEs) can achieve growth by launching new products or reaching new customers. A mix of both of these strategies represents a challenging opportunity for businesses. Most studies explore export and research activities as joint explanatory variables. This article contributes to the literature by considering the joint dynamics of internationalization and innovation strategies and measuring the impact of this strategy mix on the financial performance of French SMEs. Both strategies consumehuman, technical, financial, commercial, and organizational resources. The antagonism and the complementarity of international development and innovation activities are explored in this paper. Based on a sample of 335 French SMEs, the results confirm a strong interdependence between technological appropriation in internationalized SMEs and their business growth. Indeed, structuring and engaging in research and development activities for exporting SMEs will contribute to an increase in activity volume. The results also indicate technological resources as a common driver of both innovation and internationalization activities. The combination of product development and geographical market expansion is the most valuable combined strategy that is positively related to research and development intensity.

**Keywords:** Growth strategy, Innovation, Internationalization, SMEs

## 1. Introduction

The existence of internationalized and innovative competitive small and medium-sized enterprises (SMEs) is an absolute necessity for the growth and prosperity of national economies (Özçelik & Taymaz, 2004). The essential position of SMEs in the economies of many countries is widely recognized; their proportion can reach up to more than 97% of the total number of companies (Wolff & Pett, 2006). In France, SMEs account for 99.6% of enterprises, 60% of workers, and 53% of added value.

Prior research has shown that many managers rely increasingly on international market penetration strategies to ensure growth sustainability (Bell, 1997; Craig & Douglas, 1996). Over the last decade, the ability to spread business across borders has become a determining factor of competitiveness (Narula & Hagedoorn, 1999).

The ability of firms to develop and launch new products, services, or innovative processes that are superior to theircompetitors confirms a competitive advantage, ensuring a return on investment and a strategic advance in the long run (Allocca & Kessler, 2006). Innovative SMEs experience increased productivity, potential growth, and general sustainability intheir activities (Cefis & Marsili, 2006). In some economic sectors, the proportion of innovative SMEs exceeds that of largecompanies (Grasley & Scott, 1979); more than half of French firms filing patents are SMEs. Global strategic direction, the enlargement of the external environment of SMEs, and the acquisition of international customers are positive factors in the development of a self-sustainable innovation dynamic.

The fundamental results of J.A. Schumpeter show technical change as a main determinant of economic and social dynamism. Many resources emphasize the assumption of the joint development of technology and dynamic markets. When confronted with serious structural changes (especially technological), the evolution of market sisconstrained by innovation. This dynamic is guided by the interdependence between technological change and geographic market expansion. Innovative and technologically capable SMEs have greater potential for geographic market enlargement. They allow for a more rapid and efficient control of the internationalization process (Ripolles Melia et al., 2010). On the other hand, product innovation enablesmanagers to internationalization decisions (Cassiman & Golovko, 2010). Export strategies increase the capacity of SME innovation by enabling access to intangible resources, such as skilled

labor (Tiwari & Hawk, 2007). According to Gabrielsson et al. (2004), global activities allow direct access to business partners and international experts in venture capital markets.

French SMEs are not assecure aslarger firms; this instability slows their internationalization. Only 8% of European SMEs engage in exportation (European Commission, 2007). The proportion of exporters in French SMEs is about 4% (CGPME (Note 1) et Observatoire des PME (Note 2), 2008). In comparison, the proportion of SME exporters in Germanyis 11%. Only 8% of sales are made by French SMEs in foreign markets, compared to 14% for German SMEs. Implementing mixed strategies seems to result in major difficulties for SMEs. Because they consume tremendous financial, technological, commercial, and human resources, innovation or internationalization strategies are limited by the size of SMEs. Auditing afirm's resources is a critical step in estimatingthe potential success of such growth strategies as innovation and internationalization. Considered fragile actors in terms of resources, SMEs maintain performance through high flexibility (Wolff & Pett, 2006). The synergy expected as a consequence of the joint development of both strategies is limited by the low transferability of resources. Indeed, cultural and institutional distances can drastically reduce the transmission of skills and knowledge.

Do internationalized innovative firms exhibit the best performance? Does a mixed strategy of innovation and internationalization allow greater business performance for French SMEs? This research answers these questions and was performed in two stages. First, we will measure the potential growth of exporting SMEs by applying innovation or duplication strategies. Second, we will studythe impact of technological and financial resources on innovation codification and the intensity of internationalization.

The first step will rely on previous research to explore the correlation between innovation and international development. Then, a TOBIT model will allow for the measurement of the shared indicators of innovation and export intensity using a database consisting of 335 French SMEs. The results establish that a mixed strategy is a growth catalyst for SMEs. Specifically, technological resources are key drivers of internationalization and codified innovation in French SMEs. Financial performance, the size of the company, and its cash flow are all levers of codified innovation in SMEs.

While most research studies distinguish between the indicators of innovation and internationalization, our approach is more focused on the connections between these two strategies and how they complement each other. This article provides critical business performance information, allowingfor detailed future research on the competitiveness of SMEs. The hypotheses provide managerial guidelines for resource allocation in innovation and internationalization fields.

## 2. Theoretical Background and Development of the Hypotheses

The following analysis studies the complex relationship between internationalization intensification and innovation in SMEs. A higher degree of internationalization positively affects a firm's capacity to develop innovation performance (Kafouros et al., 2008). Other research shows the specific influence of innovation and technological capabilities on internationalization strategies and growth.

### *2.1 Internationalization and Innovation: Complementarity of a Strategic Duo*

According to recent studies of SMEs, innovation activities are conditioned by the limitation of resources (Wolff & Pett, 2006). A company may face difficulties due to a lack of resources (Julien & Carrier, 2002). Activity internationalization provides SMEs theopportunity to increase their resources by reaching new markets. This leverage frees internal financial resources. Access to external financing is also improved through export activities, providing convenient access to new networks of potential investors more willing to participate in innovation efforts. The empirical test from Lovdal and Neumann (2010) established that firms in the energy industry use internationalization to overcome the capital access barrier to market entry. The increase of sunk costs of research and development requires companies to grow beyond their borders to cover expenses.

This network effect is not limited to the financial dimension. Innovation in SMEs consists of an interactive model where technology emerges from the conjunction of several organizations at different stages of the process (Saren, 1990). The innovation process is based on acompany's ability to activate its existing and available internal knowledge. It also depends on the firm's capacity to gain knowledge from external sources through imitation strategies, licensing acquisition, partnerships, or the purchase of patents. SMEs constantly cooperate with customers, competitors, and/or suppliers within their business environment (Woolgar et al., 1998). The intensity of external cooperation depends on the economic activity sector (Baldwin & Peters, 2001). Innovation activities are intensely correlated to the economic sector (De Jong & Vermeulen, 2006). According to Handfield (1999), SMEs operating within an industry or with technologically advanced suppliers have higher innovation potential. Proximity and exchange with universities, science parks, and public institutions are significant in the justification of innovation and

the adaptability to environmental changes (Löfsten & Lindelöf, 2002). The geographic restrictions of SME activities in a local business constrain itsinnovation capabilities (Rothwell & Zegveld, 1982). However, a geographical expansion of activities allows for the enrichment of the corporate network on a global scale. It also offers a variety of complementary potential contacts and skill transference. Internationalization provides opportunities tolearn new skills through foreign markets (Hitt, Hoskisson & Kim, 1997).

The geographical diversification of customers in the internationalization process stimulates customer demand formulation. Prearranged proximity allows access to critical information in terms of current and potential customers' expectations (Julien & Carrier, 2002). As anagent of new ideas or needs, customer diversity is a source of innovation. Flexible SMEs will adjust and followa new path of research and development (Root-Bernstein, 2003). Much research considers customers as the main lever of product innovation (Oakey et al., 1988). The connections developed by SMEs provide strategic information that guide innovation (Yap & Souder, 1994).

Acaravci and Ural (2012) demonstrated the role of innovation inthe internationalization of Turkish companies. The potential of export activities increases as a result of the endogeneity of innovation activities (Vandenbussche & Van Beveren, 2010). Furthermore, product innovation is presented as a major lever of the propensity of German companies to export (Becker & Egger, 2009). Drieffield Higon drew similar conclusions related to businesses in the UK in 2005. According to the seauthors, product and process innovations contribute equally to internationalization.

### *2.2 Limitations of Internationalization as a Lever for Innovation*

The evidence presented above demonstrates significant resource mobilization synergy potential between internationalization strategies and innovation activities. However, the transferability limits of these resources in the development of international markets remain real. Cognitive diversity between different cultures affects information flow. The benefit of the synergies developed in the previous section (2.1) requires an anticipation of international constraints. Strategic and managerial skills are a scarce resource in SMEs and may require a choice between internationalization and innovation to optimize the growth of a firm. The next question is based on the profit maximization of SMEs through innovation strategies and internationalization (Kyläheiko et al., 2011). Profits related to innovation and technological capabilities present major difficulties in protecting knowledge that is non-rival. According to Teece (1986), the solution is based on the protection of intellectual property through patenting.

To summarize our discussion on the characteristics, resources, and transferability of technological skills and potential synergies in SMEs:

1. If SMEs codify and legally protect their technology skills, innovation strategies and internationalization are complementary.

2. If SMEs do not codify and legally protecttheir technological skills, the application of these strategies remains possible. However, the structure will face significant transaction costs in order to benefit from synergy. In the case of arbitration between the two strategies, innovation remains a priority in order to sustain activitiesthat can be geographically expanded in the future (Rugman & Li, 2007).

Ansoff's (1965) studies regarding the concept of internationalization strategy suggest the active exploration of new markets. Johanson and Vahlne studied the incremental nature of internationalization in 1977 to finally focus on organization and knowledge in recent years (Table 1).

H1. Mixed strategy internationalization-innovation allows a higher growth potential than a single internationalization strategy.

Profitability is the long-term objective of abusiness. In the medium term, growth may be itspriority. The fastest growth method is a combination of internationalization (new markets) and new products or processes (competitive advantage). Born-global SMEs are the best example of this strategy (Pearce & Papanastassiou, 2006). According to Aw et al. (2005), export activities and research and development combined allow the maximization of profits. In 2011, these authors also demonstrated close relationships between research and development, exports, and business productivity. A strategy of innovation and internationalization along with the existence of critical size isan essential combination for the survival of Italian firms (Giovannetti et al., 2011).

Insert Table 1 Here

### *2.3 The Technological Capabilities in the Growth Strategies of SMEs*

Technological capabilities refer to technological knowledge gathered within the firm through cumulative research and development activities. These capabilities include expertise in technology and potential innovation based on the technical resources of the firm, allowing for the development of a stock of new technologies and knowledge. These

capabilities also generate licenses and patents, creating new profits (Mansfield, 1984). Technological expertise gives SMEs the capacity to identify environmental opportunities and enables efficiency through the development of new products or processes.

H2. Accumulated technological capabilities improve the innovation codification of French SMEs.

Considered a slow and sequential process since the Uppsala School (Johanson & Vahlne, 1990), the internationalization strategy of SMEs has been described as an incremental progression based on accumulated experiences in the foreign market. This approach has been moderated by the study of born-global SMEs (Knight & Cavusgil, 1996) or globalized startups (Oviatt & McDougall, 1994) that were internationalized before their long-lasting implantation in the domestic market. The linear justifications of internationalization have gradually declined for explanations based on the resources of SMEs (Brouthers, Brouthers & Werner, 2008). The accumulation of resources and technological know-how offering a competitive advantage is transferable to international markets (Julien & Ramangalahy, 2003). Innovation is then defined as the strategy that permits competitiveness.

H3. The intensity of international trade depends on the technological capabilities of SMEs.

H4. French SMEs with higher cash flow and financial capabilities have a greater potential for codified innovation.

H5. Codified innovation depends on the intensity of internationalization.

Empirical results demonstrate that an increase in export activities from firms in industrialized countries stimulates patent accumulation (Chang et al., 2011).

## 3. Methodology

### *3.1 Data*

A database (Note 3) was built using different approaches to test the hypotheses. Data were collected from two existing databases that are updated every six months: Dianeand Astree. Astree (Coface-Bureau Van Dijk) provides information about a firm's age, economic sector, geographic location, and size. Diane provides basic indicators related to global turnover; export turnover; research and development costs; profitability; and the number of concessions, patents, and similar rights over the last 10 years. Our database was built using random stratified sampling. Categories relevant to the present research were selected. Size and economic sector were considered the two critical elements in the internationalization of SMEs. To assemble the database, the following were considered: the number of employees (firm size) and the NAF (Note 4) code (sector). These variables allowed for the aggregation of companies with similar or close issues. The sample was composed of independent SMEs with less than 25% of their capital held by a group. We identified a sample consisting of 50% micro enterprises (Note 5), 31% small enterprises, and 19% medium-sized enterprises. This is consistent with the total repartition of French SMEs. The amount of micro enterprises outweighs the two other groups. The proportion is even higher in the population of French SMEs; it is reduced in our database to obtain significant conclusions for the three groups that werestudied.

*The current classification from the European Commissionis consistent for controlling the stratification of our database. The final sample does not include firms with less than 8 employees to ensure the homogeneity of concerns in terms of innovation and internationalization. All SMEs in the database are independent, (larger companieshold less than 25% of their capital). Our sample includes 335 firms, representing 14 economic sectors: 12 from the industrial sector (85%) and 2 from the service sector (15%). These percentages are consistent with the export activities of SMEs.*

As exploredin the first part of this article, literature on the subject is abundant and heterogeneous. The primaryresults were prioritized to determine their respective roles. Resource capital, knowledge investing, organizational structure, and competitive environment fit with innovation development and influence the scientific, technological, organizational, financial, and commercial activities of SMEs (Landry & Amara, 2005). The research and development is one of these activities; however, the level of involvement in research and development is not the exclusive predictor variable of innovation (Adams et al., 2006). Empirical works show a relationship between research and development and innovation (Adams et al., 2006; Raymond & Pierre, 2007). The establishment of this connectionis requiredin the case of SMEs (Carmel & Nicholson, 2005). These results confirm that research and development is an input in the process of innovation rather than a measure of innovation.

### *3.2 Variable Measurement*

3.2.1 Innovation and Internationalization Characteristics and Performance of French SMEs

Descriptive statistics are presented in Table 2. The 335 SMEs are divided into 14 economic sectors. The average export turnover is 113 K€ per employee per year. Global turnover per employee is 537 K€, and the average profit per employee per year is about 6 K€. Our sample includes companies investing an average of 22 K€ in research and

development per employee per year. Patents provide 21 K€ per year per employee with an average size of 28 employees.

H1. A mixed innovation-internationalization strategy allows for a higher growth potential for French SMEs.

To understand the connections between internationalization and codified innovation in French SMEs, the growth strategies classification introduced in part 1 was used. Codified innovation refers to all technological capabilities listed, codified, and legally identified through patents and concessions.

Insert Table 2 Here

3.2.2 Impact of Technological Capabilities on Innovation and Internationalization Variables

Codified innovation is the result of a process that starts with the generation or acquisition of ideas and ends with the implementation of these new concepts. In this research, the intensity of concessions, patents, and similar rights (Note 6) is a measure of the innovation level. The research focus on quantifying codified innovation. The variable of concessions is composed of a ratio relative to the size of the SME. This method allows the neutralization of the company size in the empirical findings. Export turnover is a measure of a firm's internationalization intensification. The empirical results of Solomon and Shaver (2005) establish that exportation is the main internationalization strategy. The export turnover variable is measured as an average ratio using the size of an SME. International financial crises tend to increase the financial constraintson SMEs. Measures from a sample of companies from 16 industrialized or emerging countries show that financial constraints are an obstacle to the growth of SMEs (Aghion, Fally & Scarpetta, 2007).

Financial profit or loss variables indicate specific financial conditions to ensure the profitability of international or innovation activities. SMEs might benefit from a higher internal financing capacity (through cash earnings). A financial lever provides greater investment capacity.

The variable of turnover (Note 7) indicates connections between the financial performance of SMEs and internationalization and innovation strategies. Turnover is a significant lever for better internal financing capacity. Is there a required critical size for internationalization or innovation? Does the issue of critical size developed by Kalika (1995) apply to export activities? SMEs in the database consist of 8 to 249 employees, with an average of 28 employees. The study of the size of SMEs responds to the questions above. Previous works show diverse conclusions concerning the connections between research and development and innovation. Although research and development does not always lead to a higher level of product innovation, the accumulated knowledge promotes positive externalities in terms of innovation (Brouwer & Kleinknecht, 1996). The intensity of technological resources in SMEs represents a strategic potentialforlong-term growth; it also provides a competitive advantage in terms of new market opportunities.

*3.3 Method*

In order to assess the contribution and relative importance of the various determinants, multivariate analysis was conducted. The Tobit model allowed us to assess the common levers of codified innovation and internationalization. We focused on the connections between the power of the independent variables to explain export intensity and the intensity of concessions, patents, and similar rights. We preferred Tobit regression over the usual linear regression techniques (OLS) because of the nature of the dependent variables, both of which are limited dependent variables. OLS assumptions of linearity may be violated and estimationscould give rise to biased results (Maddala, 1983). Wooldridge (2002) considersthe interval of those variables extremely restrained. Indeed, in the present sample, a portion of the SMEs have no export activities or no concessions, patents, and similar rights income; 83% have export activities, and 73% have revenue related to concessions, patents, and similar rights. One of the main issues in estimating the levers of our dependent variable is that there may have been selectivity bias if only firms with positive international and innovation activities were included. The Tobit model enables the analysis of a null, dependent variable when SMEs have no revenue related to concessions, patents, and similar rights and/or no export turnover. The model enables a study of the decision about whether or not to export and/or innovate and the level of exportation and innovation.

The Tobit model is expressed using the following equation:

$$y_{it}^{*} = \gamma + \delta_t + \beta X_{it-1} + u_{it} \qquad \text{i=1, 2, 3...N; t=1, 2, 3...T}$$

$$u_{it} = v_i + \varepsilon_{it}$$

$$y_{it} = \begin{cases} y_{it}^{*} & si \quad y_{it}^{*} > 0 \\ 0 & siautrement \end{cases}$$

Various Tobit regression models using our database were conducted through STATA.

## 4. Results

### *4.1 Hypothesis Testing*

Table 3 reports the results of the first hypothesis.

Insert Figure 1 Here

Two groups are captured (Figure 1) in the database: international innovators and international duplicators. The group of innovators (Kyläheiko et al., 2011) earns more than 81% (Note 8) of its sales abroad, and 70% of its turnover comes from codified innovations (Note 9). The machines and engineering service sectors are the most valuable sectors represented (55% and 17% of SMEs, respectively). This group is mainly composed of larger firms (25 employees in average) with a 50% turnover growth rate and 48% export growth from 2008 to 2009. In 2009, the average profit per employee in this group was 11.2 K€. International innovators invest an average of 39K€ per employee (Note 10) per year in research and development.

The second group is composed of international duplicators. The SMEs in this cluster are intensively internationalized (more than 77% of their sales are realized abroad) and barely 3% of their turnover isrelated tocodified innovations. International duplicators belong primarily to the tertiary sector. More than 20% of company activities are related to plastics engineering. Mainly composed of small businesses (an average of 14 employees), the turnover growth rate of this group is less than 35%, and the export turnover growth rate is about 39% (2009). The average budget for research and development in this group is 14 K€ per employee. According to our findings, SMEs in this group have an average profit of 19 K€ per employee, which is greater than in the innovator cluster.

Insert Table 3 Here

The performance gaps in the two groups in our study aresignificant. The turnover growth of French internationalized SMEs is about 1.5 times higher than that in the innovators cluster. The same group also benefits from higher export growth than the duplicators.

Table 4 introduces the results related to hypotheses 2, 3, and 4.

These results illustrate several positive and statistically significant correlations between export intensity, codified innovation, and some of the levers tested in our regression model. Diagnostic tests for multicollinearity were executed, and no multicollinearity issues were identified. Table 4 reports the results of the Tobit regression models, identifying common levers of export and innovation intensity. The specified models are statistically correct and the validity of results can be assumed (Tables 5 and 6).

Insert Table 4 Here

The results shown in Table 4 confirm strong correlations between technological resources, codified innovation, and internationalization.

Tests show that codified innovation is stimulated by financial performance (turnover), the size of the SME, and the cash earnings level of the firm. The 20% most innovative SMEs in this sample (80% of their global earnings were realized through innovation) show a 6% higher financial performance level than other firms. This lever is significant in terms of innovation development. Efficient SMEs in our database do not benefit from the strong development of codified innovation. Efficient companies do not necessarily have consequent codified innovation. Within the last 10 years, the most innovative firms have spent 11.34% of their turnover on research and development activities compared to 9.45% for the rest of the SMEs in our sample. Minor dispersion in terms of technological resource development between the different categories of SMEs illustrates the low proportion of the budget that is invested in this strategy. This observation also concernsthe most dynamic 20% of firms in terms of codified innovation and the most internationalized 20% of the SMEs of our sample. Less than 2% of the turnover was invested in the accumulation of technological resources within the last 10 years. The size of an SME has a major effecton codified innovation development. The most innovative SMEs have an average of 24 employees compared to 28 for the other firmsinthe database. The net margin of the most innovative SMEs is about 2% (Note 11) in contrast to3% in other firms.

To finish the interpretation of the outcomes, a discussion of thenon-determinant variables will continue. Export intensification does not present a direct connection with codified innovation. The conclusions are similar for financial performance, size, and cash-earning capacity; however, none of those variables showed a direct correlation with internationalization intensification.

### *4.2 Discussion*

Insert Table 7 Here

The overall aim of this research was to combine empirical reasoning on internationalization and innovation. The two clusters of French internationalized SMEs (innovators and duplicators) indicate that overall growth performance is optimized in internationalization combined with codified innovation (hypothesis 1). This work clarifies the results of Aw et al. (2011) and Giovanetti et al. (2011) through observing the influence of innovation codification. We add to previous research by illustrating that a combined strategy approach is valuable for the competitiveness of a firm. Whereas previous results have focused on innovation or internationalization as single strategies, this conclusion leads to a more complete understanding of SME exporting and the knowledge codification process. Hence the research contributes to prior research that found that internationalization and innovation have a positive impact on company's growth. We add to this literature by demonstrating that a combination of export activities and innovation codification is highly valuable for French SMEs.

Significant conclusions were obtained by studying the determinants common to innovation and internationalization intensification. The connection between the two strategies is too often perceived as antagonistic by prior research. The facilitating effect of technological resources on internationalization and innovation is important (hypotheses 2 and 3). Our results contribute to those of Mansfield; the accumulation of research and development activities offers conditions essential to the production of patents as well as to the development of exportation. The conclusions of Julien and Ramangalahyare also confirmed for French SMEs. Financial resources are key levers of codified innovation (hypothesis 4). By internationalizing their business, French SMEs avoid financial barriers restraining their innovation processes.

We also found that the intensification of the internationalization of French SMEs weakly influences codified innovation (hypothesis 5). Interestingly, we detected no evidence of a direct connection between codified innovations and export activities. This may be due to the fact that research and development is the junction between the two strategies. These results confirm those from previous research. Girma et al. (2008) emphasized that experience in exportation does not support the innovation capacity of British companies.

The present paper focused on codified innovation. Although it is difficult to measure, non-codified innovation in SMEs could be assessed for growth potential. Future research may be encouraged to analyze theinteractions between technological resources and codified innovation in more detail. Moreover, connections between entrepreneurial characteristics, modernization of the company, and its geographical development should also be examined.

## 5. Concluding Remarks

Toward a public support merger for innovation and internationalization of SMEs.

This study sheds light on the connections between technological resources, innovation (codification), and internationalization. The results allowed for a better adaptation of public innovation and export policies, which are separated and individually managed. Mergingand coordinating geographical and technological development support in SMEs improves competitiveness. By dividing them into two public policies, synergy through technological resources is not attainable for SMEs. The French Employment Orientation Council has identified more than 2500 different support policies that have a strong lack of accuracy. A study conducted by ANVAR (Note 12) (a French organization for the improvement of innovation in SMEs) in 2001 reported that 39% of financial support, such as repayable advances, led to failure. Support incodifying the existing innovations in SMEs will sustain the internationalization strategy as a result of the transferability of knowledge. This might be due to innovative products, but it could also be due to the codification of the process (organizational, etc.). Cultural and cognitive distances in geographical development processes are controlled by readable and transferable languages. The risk of decline in technological resources from penetrating new markets and facing new competitors is decreased by the legal codification of process and product innovation. The advancement of research and development activitiesin SMEs creates more patents than in large firms (Schwalbach & Zimmerman, 1991). Despite a greater number of SMEs being granting patents, fewer applications are received from SMEs than from large businesses; nearly 20% of patent applications come from SMEs, compared to 60% from larger businesses. On average, SMEs file about 1.3 patent applications per year as opposed to 8.4 filings from large companies. Critical size and financial capacity explain these discrepancies. Firms should pay 5,000 Euros for a patent in France and 50,000 for international protection, and they must pay maintenance fees each year. The organizational informality of SMEs slows down the innovation codification process.

Our results provide substantial information to orient French SME managers into dynamic endogenous strategy development for internationalization and innovation. In order to implement these strategies and to improve resource allocation, managers should intensify their research and development activities. Our study is limited to French SMEs. We have no reason to assume that firms from other areas have different approaches to innovation and internationalization; therefore, we cannot generalize our results to other countries. As is the case for most empirical

investigations, our study faces limitations. Due to the heterogeneity of the issues encountered, research on SMEs is a challenging exercise. The diversity of small business presents major barriers to the analysis of common developments. Construction of databases should go through rigorous methodologies to avoid bias related to significant disparities. By observing the results of empirical tests, we conclude, however, that some issues remain perfectly similar. The observation of research and development activities presents unique difficulties. These types of activities are not often formalized or centralized in SMEs; it is, therefore, difficult to quantify and observe them (Adams et al., 2006).

The data collected werestudied for periods covering several years, until 2009. Despite an evolving economic environment over the past three years, the mechanisms emphasized in the results are transferable to the actual environment of French SMEs.

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**Notes**

Note 1. Confédération générale du patronat des petites et moyennes entreprises.

Note 2. Petite et moyenne entreprise.

Note 3. Database was compiled in Excel in order to be analyzed in STATA.

Note 4. Nomenclature d'activitéfrançaise.

Note 5. Micro enterprises are included in the database because they have similar concerns to small companies in terms of internationalization. A test of the "firm size" factor has not highlighted this factor as a determinant for internationalization.

Note 6. Concessions, patents, and similar rights in K€, 2009.

Note 7. Net turnover, 2009.

Note 8. Proportion of the export turnover in the global turnover, 2009.

Note 9. Proportion of concessions, patents, and similar rights in K€ in the global turnover, 2009.

Note 10. Research and development budget of the last 10 years are observed.

Note 11. Net income / turnover = net margin.

Note 12. Agencenationale de valorisation de la recherché.

Table 1. Growth strategy classifications

| Growth strategy | National development | International development |
|---|---|---|
| **Innovation** | National innovators | International innovators |
| **Duplication** | National duplicators | International duplicators |

Table 2. Descriptive statistics

| | N | Mean | Min | Max |
|---|---|---|---|---|
| Export turnover | 335 | 113 | 2 | 2987 |
| Financial performance | 335 | 253 | 33 | 6355 |
| Technological resources | 335 | 22,88 | 0 | 1648 |
| Concessions, patents, and similar rights | 335 | 21 | 0 | 845 |
| Size | 335 | 28 | 8 | 249 |
| Cash earnings | 335 | 5,88 | -606 | 168 |

Table 3. Growth indicators in French internationalized SMEs

| | Duplicators | Innovators |
|---|---|---|
| Annual turnover growth | 34% | 50% |
| Export growth | 39% | 48% |

Table 4. Common innovation and internationalization levers

| | Internationalization | | Codified innovation | |
|---|---|---|---|---|
| Variable | Coef. | P>\|t\| | Coef. | P>\|t\| |
| Financial performance | 0.4503348 | 0.000 | 2.576483 | 0.000 |
| Technological resources | 5.41064 | 0.000 | 1.035334 | 0.003 |
| Size | _.2156484 | 0.019 | 2.287395 | 0.018 |
| Cash earnings | 0.367976 | 0.016 | 1.032995 | 0.000 |
| Concessions, patents, and similar rights | 0.3180558 | 0.019 | CAX .5511148 | 0.000 |

Table 5. Tobit regression - Codified innovation

Tobit regression
Number of obs = 335
LR chi2(5) = 2427.84
Prob> chi2 = 0.0000
Log likelihood = -2148.9816
Pseudo R2 = 0.3610

| **brev** | **Coef.** | **Std. Err.** | **t** | **P>\|t\|** | **[95% Conf. Interval]** | |
|---|---|---|---|---|---|---|
| **ca** | 2.576483 | .1648187 | 15.63 | 0.000 | 2.252255 | 2.90071 |
| **rd** | 1.035334 | .347933 | 2.98 | 0.003 | .3508872 | 1.71978 |
| **taille** | 2.287395 | 1.293121 | 1.77 | 0.018 | -.2564037 | 4.831195 |
| **bnf** | 1.032995 | .0213541 | 48.37 | 0.000 | .9909897 | 1.075001 |
| **cax** | .5511148 | .0112534 | 48.97 | 0.000 | .5289783 | .5732514 |

STATA

Table 6. Tobit regression - internationalization intensity

Tobit regression
Number of obs = 335
LR chi2 = 2635.27
Prob> chi2 = 0.0000
Log likelihood = -2026.0712
Pseudo R2 = 0.3941

| cax | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. Interval] | |
|---|---|---|---|---|---|---|
| **ca** | 0.4503348 | 0.0179442 | 25.10 | 0.000 | .4150338 | .4856358 |
| **rd** | 5.41064 | 0.0376156 | 143.84 | 0.000 | 5.336645 | 5.484635 |
| **taille** | _.2156484 | .1646476 | _1.31 | 0.019 | _.5395469 | .1082501 |
| **bnf** | 0.367976 | 0.152191 | 2.42 | 0.016 | .0685755 | .6673764 |
| **brev** | 0.3180558 | .1680188 | 1.89 | 0.019 | _.0122482 | .6485936 |

STATA

Table 7. Hypotheses acceptance

| | | |
|---|---|---|
| H1 | Mixed strategy (innovation-internationalization) and growth potential | Accepted |
| H2 | Cumulated technological capacities and codified innovation | Accepted |
| H3 | International trade intensity and technological capacities | Accepted |
| H4 | Cash earnings, financial capacities, and codified innovation improvement | Accepted |
| H5 | Codified innovation and internationalization intensity | Partly accepted |

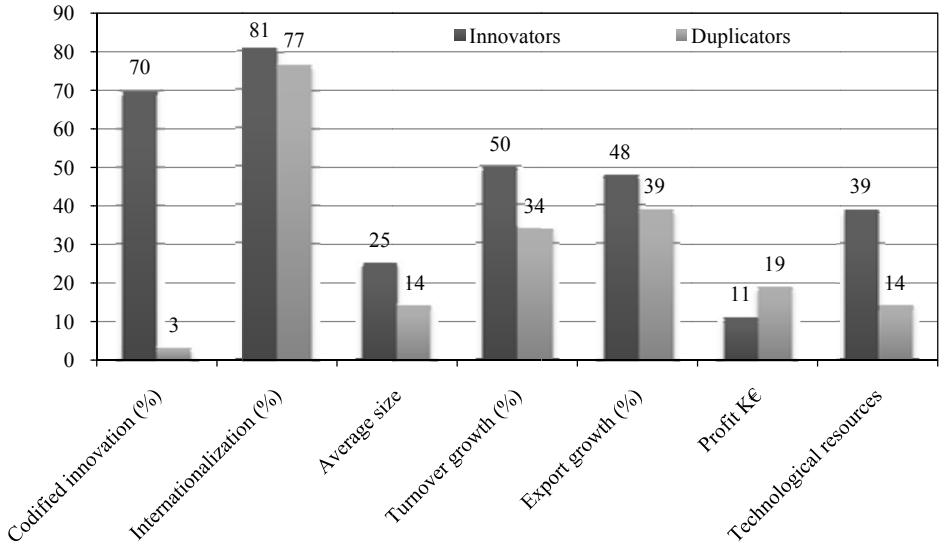


Figure 1. Factor intensity, per cluster, in French internationalized SMEs

# Small and Medium-sized Enterprises and Their Attitudes towards Internationalization and Innovation

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**Abstract**

We use 16 case studies of SME to examine a very diverse range of innovation vs internationalization situations. Four synergic scenarios can be discerned, four situations can be identified in which innovation and internationalization either simply occur side by side or are in conflict; and many SMEs go through successive stages in which the balance between internationalization and innovation shifts over time. The companies examined show how internationalization uses mixed (technological and managerial) innovation devices in complex combinations, depending on the type of company, the operational context and their business trajectory.

**Keywords**: Internationalization, SME, Innovation

## 1. Introduction

The phenomena of internationalization and innovation have been recognized as the key drivers behind the development of small and medium-sized enterprises (SMEs), and appear to be irrefutably linked. However, many French SMEs continue to be reluctant to innovate and stray beyond the borders of their native countries due to the risks which this involves. In 2008, 6% of SMEs generated a portion of their turnover from exports (Observatory of European SMEs, 2008). Data in this field are disparate, however: the regularity of exports varies, and SMEs with some kind of group affiliation report five times more foreign sales than their independent counterparts.

Meanwhile, SMEs which engage in innovation export more: one in two SMEs in this category generates more than 5% of its sales abroad (Note 1). For this reason, research papers linking the aspects of internationalization and innovation are increasing in number (Perrault & Saint Pierre, 2008; Le Roy & Torrès, 2000; Gueguen *et al.*, 2007, Wolff & Pett, 2000). Practice shows that international activity is not restricted to exports: SMEs are willing to relocate, engage in foreign direct investment and forge business partnerships in foreign countries.

Many studies analyze the way in which SMEs optimize or fail to optimize their internationalization and innovation activities. Do these activities lead to synergies, are they merely concurrent or are they even ridden with tensions? If difficulties arise, is this due to conflict arising from the means, time, skills or leadership available or is it because of the nature of internationalization itself (skills drain and unfocused positioning)?

It seems inappropriate to view these issues from a global perspective, as SMEs vary in terms of the contexts in which they operate and the positions which they adopt. Rather, we use 16 case studies to examine a very diverse range of model situations. These situations are not uniform in nature; in most cases, we find a mixture of forward thinking, opportunism and plain luck, as can be seen in any strategic process.

These cases will be used to gain a deeper understanding of SMEs' strategic positioning regarding innovation and internationalization. With the help of managers, the case studies could also lead us to cause SMEs to rethink or corroborate their strategic decisions.

We do not include group subsidiaries in this study, as they have access to export-related resources through their parent companies, which means that their ability to trade abroad differs from that of independently managed SMEs.

## 2. Frame of Analysis

### *2.1 A Few Misconceptions*

SMEs fall victim to numerous misconceptions regarding their internationalization behavior. At least three of these are discussed below.

Firstly, SMEs are the subject of a number of dogmatic preconceptions meted out through sound arguments telling them "how to export". The expounding of general principles may seem reasonable (and it is reasonable in part), but it disregards certain realities specific to SMEs and does not account for the fact that these businesses often make decisions reactively, or even "in fits and starts", to paraphrase Montaigne (Note 2).

Let us take an example of rational injunctions (taken from a website, rungisinternational.com): "Exporting success cannot be achieved through improvisation. Besides patience and determination, it requires planning and specific preparation, both of which in turn demand that the business adopt a structured method with a clearly defined strategy and financial plan […]. The finances on offer must be commensurate with the size of the firm and its turnover objectives. The business must have enough financing to be able enter a foreign market without qualms […]. In light of the product chosen for export, the most profitable market must be identified, the potential for market growth analyzed, and the customer profile targeted, all the while taking into account the degree of political risk, channels of distribution, regulations, competition and infrastructure […]. The business must adapt to cultural issues, that is to say the way people buy, live and think. Any preconceived idea can be harmful to the business's involvement in the chosen market. And so on." At first sight, there is nothing wrong with this sensible list, but it says nothing of real strategic impulses or the risks and opportunities behind them.

A second common misconception is that SMEs need to have reached a certain size (through unions, associations or support from international businesses at the very least) before they can export (Perrault & St Pierre, 2008). Admittedly, "firms becoming established in a greater number of destinations are more productive, are larger, pay higher wages and enjoy bigger margins" (Fontagné & Gaulier, 2008), but the fact that a business exports less or across shorter distances does not mean that it is not internationalizing, and nor does it mean that it is devoid of strategy or productivity as a result.

In broader terms, general statements about links between business environment, experience or length of business activity and degree of internationalization should be treated with caution (Andersson, Gabrielsson & Wictor, 2004). These aspects are certainly relevant, but general statistics cannot account for individual behaviors.

Finally, many analyses confuse internationalization and exportation. In a general sense, any type of internationalization involves exporting, importing, and exchanging technological skills on a global market (Perrault & St Pierre, 2008). Moreover, we can discern and describe various types of internationalization: notably commercial (expanding trade), technological (where there is an open link with the global industrial system), and organizational (involving complex relocation in, for instance, the commercial, logistical, or productive domains).

### *2.2 A Few Shared Findings*

A distinction can be made between three types of internationalization:

(a) *Incremental* (as can be seen in step-by-step models). For example, a company exports to reduce its level of risk or uncertainty by enlarging its markets little by little.

(b) *Opportunistic* (methods of international penetration involving seizing opportunities in conjunction with the firm's types of strategic involvement);

(c) *By initial design* (in this case, internationalization is directly linked to the birth of the firms: BORN GLOBAL COMPANY, INTERNATIONAL NEW VENTURE, INSTANT EXPORT, INFANT MULTINATIONAL, GLOBAL START-UP, etc.).

For Julien and Martin, (1996), the SMEs which export the most are medium- to high-technology companies which maintain a level of commercial, competitive, and technological responsiveness and which have a number of formal processes at their disposal. In other words, in addition to securing the minimum technical abilities required, the firm must also enjoy the necessary commercial prospects and structure its activities (so as not to lose itself in the formal variety which arises as a result of internationalizing).

Various studies (Coviello & Munroe, 1995; Julien & Martin, 1996) have shown that SMEs' ability to forge contacts (to join and expand networks) may explain their propensity to internationalize. Whether formal or informal in nature,

such contacts enable the firm to benefit from opportunities by summoning skills. In the same way, Julien (2005) prompts managers to join intelligent networks which are able to support them, that is to say to help them develop their knowledge and to provide them with rich information and new opportunities.

Finally, as managers plays a key role in directing SMEs (Julien, 1997), they contribute directly to their propensity to internationalize, or indeed their lack thereof (Morgan, 1997; Lloyd Reason & Muughan, 2002). Useful personal characteristics in this regard are a certain level of training, international experience and fluency in foreign languages. A sense of the challenge involved in going international must also be added to this list (Calof & Beamish, 1995). Knight (2001), meanwhile, observes that "The manager's international inclination is a fundamental attitude and contributes greatly to performance". On the contrary, a manager's fearful attitudes concerning risks and innovation can generally be considered as inhibiting factors (Fillis, 2000).

We can see from the above that opportunities for internationalization are secured when a favorable manager coincides with available resources (technological potential, network-related dynamics). This marriage is a source of innovation in its own right.

*2.3 A Few Concepts to Be Tested*

Since the links between innovation and internationalization are complex and incidental, "it is not so much a help to export that companies need, but a more horizontal policy heightening the level of efficiency" so that the potential for growth or for production quality improves. "As the retreat of high-tech demonstrates, the subject of innovation is at the heart of these policies" (Fontagné & Gaulier, 2008).

In this paper, our bias is not to fix or classify SMEs' behavior during internationalization processes from the outset, and nor is it to classify them in a kind of typology (with the aim of distinguishing, assessing or classifying them).

We examine SMEs' praxis (their activity in times of change), through the managers' and their teams' behaviors, revealing the multi-faceted realities which emerge when goalposts are in flux. The links between internationalization and innovation vary through time, obeying circumstantial rules.

Obviously, conditions of general rules are identified (in help, support or injunctions; in regulation through the environment, advice networks or financing). A need for resource-related support can also be identified (by which we mean time, methods and skills, with the technological level and requirement depending on the economic domain involved and the degree of globalization of firms competing in those domains).

However, SMEs' responses are differentiated, creative and mobile, as can be seen from the sixteen case studies offered below. It would be a pity to disregard this dynamism by imposing structuring principles. What SMEs expect is to be assisted, where necessary, to bring their initiatives to fruition, and to settle their objectives (priority management, renunciations, delays, speeding up, boldness), by bolstering their resources or by limiting their risks.

## 3. Types of Synergy between Internationalization and Innovation

At least four synergic scenarios can be discerned, and these will be labeled A to D below.

First scenario: innovation potential makes internationalization possible through specialized products with a worldwide distribution (AB).

One possibility here is a start-up decision (A): the firm is international, with "global products", from the outset. In this category we find SMEs whose manager fosters an international dimension from the start. The numerous papers on the dominant role played by managers in organizational and decision-making patterns emphasize this specific category (Julien, 1997). Indeed, the firm's objectives are strongly determined by the personal priorities of the manager, who conceives, develops and implements his firm's goals (Filion, 1991). Torrès and Plane (2003) term SMEs "ego-firms". Other papers have shown that there is a direct link between a SME's inclination to develop internationally and its manager's own characteristics (Morgan, 1997; Lloyd-Reason & Mugan, 2002), especially his experience, training, skills and origin.

***The case of SEQUANS, a very international Franco-Lebanese company (Note 3)***

*Founded in 2004, the SEQUANS start-up was floated on the New York Stock Exchange in 2011. Of French and Lebanese origin, its manager was first a senior lecturer in a university in Beirut. He then joined Alcatel, before moving to a start-up in the Silicon Valley. Next, he began working on the design of silicon chips for mobile phones and fourth-generation USB flash drives.*

*When he started out in Paris (SEQUANS means "an inhabitant of the banks of the Seine"), he was refused support by all the banks and investment funds, with one exception, financed in part by the Region of Ile de France. Because of this, he has always felt a sense of gratitude towards the local and regional authorities.*

*He signed his first commercial contract with a small Israeli company in 2005 (such are the benefits of having local links). Since then, he has learnt to negotiate with the big names in telecoms. His technical expertise has enabled him to become a world leader in his field. A polyglot, he has settled in several countries, and now employs 250 people with 37 different nationalities; he has also increased his company's turnover thirty-fold in five years (from 2.5 to 70 million dollars).*

*His share issue on Wall Street gave rise to new opportunities concerning technological backing and markets opening.*

*Clearly a competent scientist, he has benefited from networking skill and determination, with the business sense common to all Lebanese. Meanwhile, the French setting in which he operates was more of a hindrance than a help with the satisfaction of his financial needs at start-up.*

***EGO case study (Note 4)***

*This furniture company employing 25 people was created in 2004 following an encounter between a designer and an engineer experienced in commercial techniques. It manufactures top-of-the-range outdoor furniture (garden and pool furniture). Given the prices charged, this company internationalized from the outset so as to target wealthy customers.*

*The company focused on three strong avenues: (a) coherent positioning (to prevent any dilution of its brand image); (b) all cash flow was reinvested in exports (to tackle new markets); and (c) all the staff were empowered (to create partnership links with each of them).*

*In outdoor furniture, a two-year period generally elapses between initial contact and the realization of sales. A good level of penetration is crucial (to be achieved through trade fairs, prospection, press relations and catalogues). The most successful retailers and those "most in step with the spirit of the society" must be identified.*

*The challenge is now to move from exportation to globalization. First of all, it is necessary to "relocate to remain in France", using a workforce based partly abroad while keeping core functions such as design, marketing, research office and tooling on site. It is then vital to become a "global brand" with worldwide recognition.*

Second scenario (B): the company has a technical core with a high level of potential (specialized products or services) which enables it to internationalize through trade fairs, trade shows, middlemen (employers' organizations, chambers of commerce and industry, public-sector partners), or simply via the internet, etc… In this case, what exists is sold (with slight adjustments). The problem is which resources to use, what backing to secure, and what support is on offer from international businesses, as well as how quickly business should be developed.

*For the manager of LABOFILL, member of a chamber of commerce and industry and coordinator of an EXPORT club, "what is vital is the exchange of experience and the opportunity to enjoy networks abroad".*

In this respect, the best method to adopt does not necessarily involve a particular geographical progression in line with the advice of those who advocate beginning with nearby countries and then moving further afield. The opportunities offered by the internet and the density of transport infrastructure mean that established contacts and links can be prioritized. It is often only then that specific risks and constraints in terms of transport costs are taken into account.

In May 2009, the DGCIS (French Directorate General for Competitiveness, Industry and Services) showed that SMEs involved in competitive clusters were more focused on foreign markets. Indeed, competitive clusters are no longer limited to a regional or even national scope, but rather they engage in an internationally oriented cooperation policy. A study by the Richelieu Committee, a French association of innovating SMEs, shows the importance of competitive clusters which can facilitate the creation of international links.

***OPEN WIDE case study (Note 5)***

*Created in 2001 with the support of Thalès and Schneider Electric, OPEN WIDE specializes in "the industrialization of open source technologies". This SME has a R&D center which enables it to remain an expert in the field and develop its role as an "integrator in the field of the urbanization of information systems".*

*Although Open Wide does not carry out any prospection abroad, Patrick Benichou, its founder and managing director, explains that the technological content which the firm possesses enables it to be present in various countries. He goes on to explain the methods which he puts in place to take new markets:*

*- It must be a provider for firms which have an engineering and design department abroad.*

*- It must be able to train stakeholders in and users of this technology and thus enable technology transfer.*

*- It must create a joint venture with a (Chinese) partner to reach target customers interested in a specific skill: railroad supervision.*

*Mr Benichou emphasizes that his membership of the competitive cluster System@tic has enabled him to adapt his offering and "to make himself known abroad".*

***PHASICS case study (Note 6)***

*Following a thesis from the LULI laboratory, which specializes in the use of high-intensity lasers, Benoit Wattelier created Phasics.*

*This SME uses patented technology to manufacture and commercialize high-resolution wave front analyzers used both in biomedicine and in the field of optical metrology.*

*Endowed with its own R&D team, Phasics seeks new ways to apply and adapt technology to its customers' needs.*

*The partnership forged between the LULI laboratory and the SME enables PHASICS to benefit from state-of-the-art instruments. In return, LULI "benefits from the know-how of the engineers and researchers" of the SME and sees its work furthered in this way.*

*Insofar as it benefits from international renown in its field of excellence and it plays host to many foreign experts, LULI allows Phasics' analyzers to raise their profiles. The manager underlines the usefulness of this partnership, which "has brought many contacts abroad and helped with development".*

Third scenario (C): Innovation is built or organized through internationalization (as it characterizes the ways in which products, services or distribution channels are organized to reach a diverse target audience). There is a complex interaction here between innovation and internationalization.

Creativity and innovative potential favor internationalization (Fillis, 2000).

***Mathez case study: Truffles for every taste (Note 7)***

*The MATHEZ chocolate factory (50 people, 10 million euros) manufactures truffles (in every possible flavor, with more than 50 varieties). Its main outlets are traditional networks (chocolate retailers), designers of food parcels and own-brand retail.*

*One investor with an international outlook insists that exporting should be an "absolute priority", convinced as he is that "MATHEZ's future is international". All that is required is patience and to insist on ("remaining determined over time"). To penetrate markets, the firm uses international trade fairs, which allow it to build a brand reputation. In commercial terms, this is the best way to establish contacts. Today, MATHEZ continues to maintain a presence at a dozen trade fairs. The internet plays the modest role of guiding prospective customers to the business and helping them to choose the products which interest them.*

*Apart from countries where negotiation with importers was required, MATHEZ maintains direct relationships. When it settles in a store or store chain, it is often contacted by competitors wishing to compete on the products offered to their customers. This method has allowed MATHEZ to develop a strong presence in Asia. Overall, exports represent 70% of the business's turnover.*

*Besides the creativity of its products and the specific formulae behind them, MATHEZ has managed to meet the needs of suppliers wanting a private brand (flexibility in packaging and market preparation).*

*In this case, innovation assists with internationalization opportunities, and is in direct response to customers' needs. It is not a complex or costly type of innovation. It pivots upon a certain expertise in terms of diversification of tastes and packaging, and relies on a willingness to "stick to demand" and a strong ability to adapt.*

***VULLI case study (Note 8)***

*This manufacturer employing 70 people is famous for "Sophie the giraffe", a rubber toy which has featured in the lives of millions of newborn babies in France. The toy was created in 1961 and is a miracle product: it is long-lasting and uses tried and tested technology.*

*However, internationalization required another form of creativity. The export department was created only in 2008 so that the business could move beyond the few sales it had previously made in Belgium and Switzerland. Although they were tried and tested, usual exporting methods did not bear fruit: the main retailers were not interested. The company then considered recruiting a "mum" who had dual nationality and liked Sophie the Giraffe. It designed a web site before visiting the country's top store, where many celebrities shop, with a stock of 20 giraffes, to have the stars photographed with the toy to generate publicity including via internet-based forums. With no advertising the retailers which initially rejected the giraffe ultimately agreed to stock it.*

*This retail pattern was repeated in 47 countries.*

Last type of favorable scenario (D): internationalization leads to opportunities for innovation (through observation of technology, know-how or commercial needs in other countries which encourage the creation of new products, processes or services in the original company). These may include harbingers of future ideas (idea detection), benchmarking (adaptation of "good practices") or the importing of skills detected (or even bought) on international markets.

***PAUL MAS case study (Note 9)***

*The Paul Mas Domains are a family property covering more than 200 hectares of vineyards around the villages of Pézenas, Montagnac, Ceyras and Limoux in the south of France. The wines produced here embody rural luxury, with a blend of tradition and innovation, creativity and authenticity.*

*By making 98% of its sales abroad, in 2006 the firm was awarded a prize for international business. It works with retail agents without seeking to create subsidiaries or joint ventures. Paul Mas secures market share by adapting to local consumers' needs and new trends (for example, the company focuses on organic products).*

*Above all, Jean-Claude Mas concentrates on innovative marketing. In addition to the quality of his products, the business seeks to provoke through imagery, selling a wine called ARROGANT FROG (abroad, the French are sometimes called frog-eaters), with an offbeat label and a screw cap.*

***Jacques ROSTAING case study (Note 10)***

*This two-hundred-year-old family business used to manufacture gardening gloves which were stocked in all garden centers with a 30% stake in market shares. This company lost its competitive edge, however, to Asian counterparts (from China, India and Pakistan).*

*In 1995, the manager was called to the rescue by his father. He loves Asia, and has traveled there a great deal for import and export purposes. He decided to settle in VIETNAM with his wife and child and to build a factory near HO CHI MINH CITY. He manufactures gloves, but also shoes, leather bags, and silk ties. He provides for luxury brands and develops top-of-the-range products.*

*The company continues to provide 54 jobs in France (design, prototypes and marketing). Its other employees are based in VIETNAM and MOROCCO.*

*This is not only a matter of relocation. By settling in Asia at the heart of the competition, the company can maintain further jobs in France and develop new products in step with local opportunities.*

A variant of the previous situation (D'): in some cases, settling abroad (in an active cluster or a network of active agents) enables the firm to establish an optimal technological innovation base.

Research by Julien and Martin (1996) explains that SMEs' tendency to internationalize is directly linked to their ability to forge relationships and contacts which enable them to get involved in networks and benefit from skills.

***ALIOSCOPY case study (Note 11)***

*The company ALIOSCOPY, which employs 25 people, was created by one of the pioneers of three-dimensional television. Thanks to Chinese LCD screens, it offers 3D spots without glasses and has 12 patents.*

*The business began exporting very quickly and opened subsidiaries in Singapore (employing three people) and San Diego (employing two people) to benefit from key moments in the market developments taking place. "Singapore is the ideal platform from which to canvass markets in China, Korea, Japan, and also India." It is in these outsized cities that the most sophisticated creations can be initiated, especially when they rely on "demanding and costly technologies". Today, ALIOSCOPY provides top-of-the-range screens for professional use in the fields of advertising, architecture and medical imaging, and it is currently testing 3D digital display. It will supply more widely in the future.*

***3S PHOTOTONICS case study (Note 12)***

*3S Photonics (formerly Alcatel OPTRONICS) is a company with 166 employees which is one of the world leaders in optoelectronic components for telecommunications networks. Nearly all of its turnover comes from exports.*

*It set up in Nozay, in the heart of the OPTIC VALLEY, thus developing a true technological and industrial cluster.*

*Alexandre KRIVINE, the Chairman of the Board of Directors, insisted on relocating to Thailand, particularly for assembly purposes, by creating a subsidiary.*

*Thailand boasts strong skills in electronics, which "allows the quality of the products to be harnessed on a global scale". Although political instability leads to other problems (with supply, for example) and the law is constantly*

*evolving (which means that specialized lawyers have to be hired), Thailand remains a must for 3S PHOTOTONICS: it is a geographical crossroads, and offers a cheap workforce with real skills.*

## 4. The Transition from One Type of Internationalization to Another, with a Shift in the Innovation-internationalization Balance

Many SMEs go through successive stages in which the balance between internationalization and innovation shifts over time.

For example, we can observe cases in which there is a shift from Scenario A to Scenario C.

***Tikamoon case study (Note 13): The greater the mastery of production, the wider the distribution can be***

*The company Tikamoon sells Indonesian furniture by designing it* in situ *but from the company's own country. At start-up, the founder had accumulated 16 years' experience in furniture sales; now, three years later, a team of 11 people manages a warehouse covering 1,200m$^2$.*

*The designer teamed up with the former manager of an online business site, so as to "pool complementary areas of skill". By managing the early stages of the business process (furniture materials and manufacture), the company wants to "multiply its distribution channels, through contacts with distributors and specialists in remote sales". It is investing in the German market, where this type of product is warmly welcomed, and hopes to boost exports to 30% of total sales within three years.*

*A German website has now been created, which has also allowed the "original French website to be redesigned" so as to simplify it, raise its profile and target it more carefully.*

*Here again, internationalization is facilitated by an increase in skills in e-commerce (hiring a partner), which soon makes it possible to create a web-based platform for Germany in light of the German population's taste for Indonesian-style furniture.*

We now move on to a case of a shift from Scenario B to Scenario C.

***R2IS case study (Note 14): Attractive innovations abroad***

*R2IS is a Lille-based company with 14 employees which specializes in IT assistance for large retail outlets (tills, electronic transactions). It is now moving into the development of mobile solutions (MOBIL'IT in 2009), with a sky-rocketing turnover.*

*This innovation brought the business to the attention of an independent American company, following a business trip to the Silicon Valley organized by EURATECHNOLOGIES (ICT incubator of the Lille Urban Community). The American firm offered to become R2IS's official representative for R2IS, enabling the French entrepreneurs to join an influential network (The Mobile Marketing Association).*

*In 2010, a meeting with a company manufacturing GPS solutions for major retail outlets resulted in an innovating product which trialed successfully. It was then necessary to set up in the USA and raise a significant amount of additional capital to support growth.*

*In this example, we observe a pleasing sequence of opportunities, with a successful and progressive interconnection of technological and international outcomes (backing of an incubation structure, partnership for the launch of the product, access to networks, opportunity seizing).*

## 5. Weak or Conflicting Links between Innovation and Internationalization

At least four situations can be identified in which innovation and internationalization either simply occur side by side or are in conflict (Scenarios E to H).

In the first type of scenario (E), the firm adds an international element to its original activity through "external growth" by buying a skill (executive, group of employees), a brand or an already internationalized subsidiary. But is this an adjacent skill (juxtaposed), or a penetrating one (which will have to be gradually integrated into the spectrum of the firm's practices)?

***EMBALTEC case study (Note 15): A nephew to innovate through the Web***

*The EMBALTEC group was founded 20 years ago and provides custom packaging services, with a branch in Nieppe (10 employees) and another in Rouen (5 employees). Its traditional customers hail from industry. The manager has diversified through EMBALOG, which operates container offloading. Tempted by the Web, he considers himself under-qualified ("I have always been reluctant, but you have to jump on the bandwagon").*

*He "sought a new outlook" and found it in his nephew, an ICT engineer had recently assisted with the development of a consultancy firm. He welcomed the opportunity to lead a new subsidiary, EMBALEO, through the internet.*

*("The WEB excited me; this is a new market for us"). The new partner's technological skills enabled EMBALTEC to broaden its potential in terms of both products and customers. Visitors to the website find packaging materials (cardboard, adhesives, plastic bags, bubble wrap, etc.). The project is aimed at individuals but also craftsmen, shopkeepers and artists. Furthermore, there are already "strategies to diversify the product range". This activity keeps current employees occupied during quieter periods, and only required the purchase of two software programs.*

*The creation of a website inevitably leads to internationalization, starting with Belgium and the Netherlands. The manager believes that "the WEB is a huge area for development. Logistics is important in e-commerce. It is an exhilarating challenge".*

*A SME can integrate technological innovation through the hiring of skills. The "well-qualified nephew" shows the need for trust (which comes through family links) when embracing a technology than one does not master oneself.*

In a second type of situation (Scenario F), the focus on exporting (or internationalization) drains the means, budget or resources that could have been devoted to innovation.

***La Cie GROUP case study (Note 16)***

*This company is a world leader in the domain of external hard drives thanks to its technical success and its original design; it has won countless awards and generates 89% of its turnover through exports. It has 14 subsidiaries with 450 employees.*

*During the 2008-2009 crisis, the manager of La Cie Group froze exports to at-risk areas, retaining its financial resources to keep its research and development functions working at a high level. It was more careful to strengthen its innovative potential than to protect export turnover, as it is less dangerous to restrain internationalization (by adapting to circumstances) than to lose ground on technical quality; only this quality makes it possible to win back markets.*

A third situation (Scenario G) deals with extensive marketing approaches (much of the same thing). These approaches do not force a business to internationalize at all; rather, the technologies developed encourage it to expand in regional or national markets.

***ACM case study (Note 17): Internal then external growth sustained by a promising market***

*ACM was created by a pharmacist-biologist and his wife in Bellegarde (in the French* département *of Loiret). It is a small group specializing in microbiological analysis (with 75 employees, a turnover of €7 million, and two fields of activity: ACM AGRO and ACM PHARMA).*

*The firm is experiencing significant growth. According to the manager, "the market for analysis in the agri-food industry is undergoing major development. Some crises have accelerated the need for safety and traceability". The business's main activity is to look for microbial or pathogenic contamination in traditionally made products, mass catering, slaughterhouses and agri-food industries. For the PHARMA branch, it also works on pharmaceutical and cosmetic products.*

*Competition is fierce, but the firm capitalizes on its "reactivity, flexibility and the range of services offered to its customers". It wins over a number of the markets abandoned by public sector laboratories depending on General Councils.*

*A leader in its region, ACM intends to strengthen its operational network by broadening its geographical scope through the taking-over of other small family laboratories. The firm has built a new head office in line with its ambitions. "Firms such as ACM are supported by the market provided they manage to move with or anticipate it".*

Finally (H), selecting the countries in which to internationalize does not always involve specific innovations or technological developments. Such decisions sometimes even undermine the products rather requiring that they be improved (such as when there is a preference for countries where technological or quality requirements are less stringent).

This does not prevent businesses from making initial technological adjustments (which are neither too costly nor complex) to meet specific requirements. However, once these have been carried out, the flow of the products (bottom-of-the-range or low-priced) requires above all an ability to supply in great quantities (capacity development).

***GAUDET bakery case study, 55 employees (Note 18)***

*Specializing in bottom-of-the-range and middle-of-the-range products, this firm exports a spiced plum tart to India with a view to its being sold over the course of a month during an important religious celebration. On the whole, the*

*business has to send at least 250,000 pies weighing 500g each, which are transported in about 15 containers. In addition to its production capacity, the firm has managed to manufacture a cheap tart which can withstand storage for six months without refrigeration.*

## 6. General Conclusion

In conclusion, these case studies have led us to observe the following:

- Fundamental technological innovations, especially upstream (prior to internationalization).
- Technological innovations with a view to adjustment and adaptation, or aiming to secure international niche markets, which interact with the internationalization process.
- Marketing or organizational innovation to penetrate certain markets, work with internationalization or speed up development by building in specific services meeting international customers' needs.
- Circumstantial or incidental innovations arising from opportunities encountered (by chance or by design) in the countries where the company has operated (through synergies with partners or ideas for new products).

The companies examined show how internationalization uses mixed (technological and managerial) innovation devices in complex combinations, depending on the type of company, the operational context and their business trajectory.

These adjustments bear witness to a need for joint creativity in the fields of engineering, trade and management which venture beyond the advice commonly given concerning technical quality (for products and services) and a potential partnership network (for international distribution).

"A relevant analysis of the "internationalization of SMEs" must be achieved through a careful definition of the procedures involved in joining the dynamic of the Global Industrial System (to which businesses contribute). This means we must not rank firms which export and import, or ones which export but do not import, to the extent that the internationalization of trade is not a relevant indicator, or at least not a sufficient indicator, of the Global Industrial System's capacity for integration. This capacity for integration becomes even more widespread if the manager is able to accommodate the various aspects of the international process and to use this strategy to achieve the level of performance which he or she desires." (Perrault & St Pierre, 2008)

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**Notes**

Note 1. Data from the Observatory of European SMEs (2008) and OSEO (2008), taken from Economie et management No. 131, April 2009.

Note 2. The mental wanderings of the celebrated author prevented him neither from exercising subtlety nor from taking on managerial responsibilities (he was mayor of Bordeaux).

Note 3. According to F. DEDIEU, L'Expansion, June 2011.

Note 4. www.lespmeexportent.com.

Note 5. Interview with Patrick BENICHOU, Journal du Net.

Note 6. Taken from L'Entreprise No. 295, December 2010.

Note 7. www.lespmeexportent.com.

Note 8. www.lespmeexportent.com.

Note 9. Case study adapted from L'Entreprise No. 277, April 2009.

Note 10. L'Entreprise, November 2010.

Note 11. L'Entreprise, June 2011.

Note 12. Adapted from L'Entreprise, No. 302, July-August 2011.

Note 13. T. BAUME, Journal des Entreprises, 8 October 2010.

Note 14. T. BAUME, "R2IS, direction les USA avec applis mobiles", Journal des enterprises, June 2011.

Note 15. G. BERTRANDE, Journal des Entreprises, 8 October 2010.

Note 16. L'Entreprise, April 2009.

Note 17. Taken from Journal des Entreprises, 2011.

Note 18. Case found on the internet.

# Technological Profiles and Technology Trade Flows for Some European and OECD Countries

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**Abstract**

In the current context of increasing globalisation, innovation and investment in R&D become crucial. Furthermore, European Lisbon strategy gave disappointing results in terms of R&D expenditures and patents. In this context, our paper deals with some OECD characteristics concerning their connection to global markets of knowledge and technology trade. Statistical results show that the USA are great performers in terms of R&D expenditures and patents, with large openness to foreign collaboration, Japan is successful in innovative activities while quite isolated from global research network. The European Union seems to be in the opposite situation. Nevertheless contrasted situations are observed, depending on the European countries. For instance Sweden, Finland and Denmark register quite good results in terms of R&D. Concerning technological trade, Technology Balance of Payments (TBP) statistics give some additional results. While the EU15 used to exhibiting a TBP deficit, the situation has changed since 2006 and the EU15 registers a surplus. This performance relies on Germany, Sweden and Austria, which are the main exporters of technology among European countries. Thanks to this first statistical analysis, it seems that technological profiles of OECD countries impact on technological trade flows. Except some specific countries' characteristics, leaders in R&D are quite active in terms of technological exports and also imports. For instance, the European leaders in R&D export their technologies but seem also active by importing technologies from abroad.

**Keywords:** Disembodied technology, Markets for knowledge, Technology, Innovation, International trade

## 1. Introduction

The nineties have witnessed the emergence of global markets for knowledge and the increasing exchange of technology across industries and across countries (Gambardella et al., 2007). International trade in technology increases with internationalisation of patent activity via multinational enterprises' strategies since 1990. Moreover with the emergence of new actors (like China), international trade in technology is a major tool for globalization of innovation and knowledge.

OECD countries display some characteristics in terms of their performances concerning R&D spending and innovation. The objective of this paper is to see if these performances are linked to Technological balance of payments (TBP). Indeed countries, which record greatest Research and Development spending, should export more technology. On the contrary, countries that does not invest much in R&D activities compared with OECD average, should import more technology from leaders countries in order to fill intheir technological gap. This issue is particularly interesting especially because disembodied technology flows have been rather neglected by economists. Trade in disembodied technologies refers to the purchase of technologies (protected by intellectual property rights) by a firm that can be included in its production process (Note 1). These include patented technologies, licensed technologies and royalties-inducing technologies. Technological balance of payments (TBP) appraises trade in disembodied technology as it corresponds to cross-border technological receipts minus technological payments. Our paper will be organised as follow: first we will give some definitions concerning trade in technology. Then we will

present technological profiles of main OECD countries. In a third section, technology balance of payments data will be analysed.

## 2. Trade in Technology: Some Definitions

The aim of this section is to explain what we mean by international trade in technology. In particular we will first stress the difference between *international transfers* and *technology spillovers*, and then we will define what we mean by disembodied technology.

Following Maskus (2003, p. 14), it is possible to define a technology, as the information needed "to achieve a certain production outcome from a particular means of combining or processing selected inputs". Technology diffusion may rely on transfers or spillovers (Shih & Chang, 2008; Keller, 2004). *Technology transfers* refer to any process by which one party gains access to a second party's information, and successfully learns and absorbs it into his production function. Taschler and Chappelow (1999, p.30) define technology transfer as "the managed, interpersonal, and systematic process of passing control of a technology from one party to its adoption by another party as evidenced by a strong emotional and financial commitment to sustained, routine use". Consequently, "technology transfer occurs between willing partners in voluntary transactions" (Maskus, 2003, p. 14-15). On the contrary, *technology spillovers* are "defined as technological knowledge being learned and absorbed into competition in such a way that the benefits do not fully accrue to the original owner of the technology" (Shih and Chang, 2008, p. 2). Technology or knowledge spillovers come from the fact that "technological investments frequently create benefits to individuals other than the inventor" (Keller, 2004, p. 753.) that is to say it generates positive externalities. (Note 2)

More and more technology transfers occur at international level mainly because multinational enterprises (MNEs) are performing abroad a growing share of their R&D (UNCTAD, 2005, p. 121). It is then important to distinguish two types of international transfer of technology: Firstly the market-mediated international transfer of technology (through licensing, R&D contracting and company sell-offs and cooperation in R&D) and secondly the intra-group transfer of technology. On the one hand, a market-mediated mechanism means that some form of formal transaction underlies the technology movement (Maskus, 2003) (Note 3). On the other hand, intra-group transfer of technology consists in exchange of technology between parent company and affiliates.

A common classification of technology relies on the distinction between embodied and disembodied technology. *Embodied technology* refers to "new technology (…) embodied in an asset (…) such as new personnel or (parts of) other firms or equipment" (Cassiman & Veugelers, 2000, p. 1-3). In other words, "Technology can be embodied in intermediate inputs, capital goods, or people" (Mendi, 2007, p. 121). On the contrary *disembodiedtechnology* refers to codified technology (in the form of formulas, blueprints, drawings, patent applications, and so on) or as uncodified form (in the sense of requiring implicit know-how from personnel know-how) (Maskus E. Keith, 2003, p. 14; Shih & Chang, 2008, p. 2-3.).

On the basis of previous definitions, three ways of transferring disembodied technology internationally can be identified.

*Licensing:* It "involves the purchase of production or distribution rights (protected by some intellectual property right) and the technical information and know-how required to make effective the exercise of those rights". License contracts can "cover a variety of transactions, including technical assistance, codified knowledge, know-how, establishment of turnkey operations, and intellectual property rights. Licenses may be offered for a fixed fee, a franchise fee, a royalty schedule (e.g., sliding share of sales), or a share of profits. They may offer rights to produce for, or distribute to, a limited geographical territory for a given period of time. The terms of a license contract may involve performance requirements of the licensee, such as non-disclosure mandates, "no-compete" clauses for personnel, and grant-back provisions on adaptive innovations" (Maskus E. Keith, 2003, p. 15 and p. 26).

*Collaboration* "International collaboration is also a means of disembodied technology transfer. It consists in partnership among researchers that can "take place either within a multinational corporation (providing research facilities in several countries) or through a research joint venture (JV) among several firms or institutions (collaboration between universities or public research organisations)." (Note 4)

Another significant channel of international technology and knowledge transfer is *"cross-border movement of technical and managerial personnel"*. Indeed, many technologies cannot be effectively or affordably transferred without the complementary services and know-how of engineers and technicians that must be on-site for some period of time.

Thus a firm can obtain new disembodied technology through a licensing agreement or by outsourcing the technology development from an R&D contractor or consulting agency (Cassiman & Veugelers, 2000, p. 3). In

other words technical services and assistance provided by skilled employees who hold know-how necessary for a successful transfer of technology can be considered as disembodied flows of technology and knowledge (Note 5).

## 3. Technological Profiles of Countries

International diffusion of technology has been very often studied through international trade in embodied technology and spillovers. Economists have neglected the technology exchangesthat involve a transfer (as seen previously). In the meantime, we are witnessing the emergence of global markets for knowledge. For instance in this following table, we can notice that international trade of technology keeps increasing during the last decade. In most countries, the growth rate of international flows of technology is greater than annual growth rate for each country. This shows clearly that countries are increasingly interdependent even in exchanges of knowledge.

Insert Figure 1 Here

Due to this context of increasing international trade of technology and knowledge, it seems interesting to consider the technological profiles of OECD and European countries.

To build this technological profile, we examineGross Domestic Expenditure on R&D (GERD), expenditure on R&D in the business enterprise sector (BERD), triadic patents and patents with foreign co-inventors (Table 1). Unfortunately most of the time, it is not possible to present figures for the European Union as a whole because some countries do not communicate detailed data on these subjects. Despite those difficulties, OECD data allow to depict some particularities.

We can notice in Table 1 several things. First, R&D expenditures as percentage of GDP of the European Union lag behind Japan, the United States and OECD countries with the exception of Sweden and Finland. Second, innovative performances, measured by the share of countries in patent triadic families, seem to be a little bit smaller for the EU. Nonetheless co-inventions are particularly superior. To sum up, the USA are great performers in terms of R&D expenditures and patents, with large openness to foreign collaboration. Japan is successful in innovative activities while quite isolated from global research network. The European Union seems to be in the opposite situation. Finland, Sweden and also Denmark register quite good results in terms of R&D and appear opened to collaboration with foreigners.

Table 1 sums up these main profiles.

Insert Table 1 Here

Table 1 shows different interesting characteristics of OECD countries'technological profile. Does this technological profile impact directly on trade in technology of a country? Next section will analyse the links between technological profiles and countries' ability to export their technology, or their ability to use imported technology to introduce new products. Indeed, more than two-thirds of product innovators in New Zealand and the United States are not engaged in R&D as well as more than 90% in Chile and Brazil (OECD, 2011) (Note 6). It could let us think that these countries import disembodied technologies.

## 4. The Technology Balance of Payments

We have seen previously that innovative activities of European countries are characterised by their great openness to foreign collaboration. In this section, we will examine the technology balance of payments data to show the features of European countries compared with main OECD countries relating to trade in technology.

### *4.1 Presentation of the Technology Balance of Payment Data*

According to Mendy (2007), Technology Balance of Payments (TBP) "constitutes the only internationally comparable database on trade in disembodied technology" and their aim is "to provide an accurate measure of trade in technology, removing items without technological content". The OECD includes the following items in the TBP statistics: patents (purchases and sales); licenses for patents; know-how (unpatented knowledge); models and designs; trademarks (including franchising); technical services; finance of industrial R&D outside national territory. The OECD explicitly excludes from TBP: commercial, financial, managerial and legal assistance; advertising, insurance, transport; films, recordings, and material covered by copyright; design; software.

Technology receipts minus technology payments give the TBP. "*Technology receipts* depend on a country's R&D effort and also correspond to foreign sales of the marketable results of that effort". "Over 60% of such technology transfers in the major countries are between parent companies and affiliates". "*Technology payments* correspond to knowledge that is immediately useable by country's productive system as a technology input" (OECD, 2005; OECD, 2006).

As an indicator, "the technology balance of payments reflects a country's ability to sell its disembodied technology abroad and the extent to which it makes use of foreign technologies". Nonetheless, "the deficits / surpluses need to be carefully interpreted since they can reflect a wide range of factors including a country's degree of technological autonomy: its ability / inability to assimilate foreign technologies or its high / low levels of technology imports / exports". Ultimately, a country's technological development can "reflect the choice between domestic production of technology / inventions (via a high national R&D effort) or foreign absorption (via the acquisition of foreign technologies and the payment of licensing fees and royalties)." (Denis C. et al., 2006). Consequently a growing deficit does not necessarily indicate low competitiveness in technology. Finally, since most transactions correspond to operations between parent companies and affiliates, the valuation of the technology transfer may be distorted (Note 7). "Therefore, additional qualitative and quantitative information are needed to analyze correctly a country's deficit or surplus position" (OECD, 2006) as usual when considering balance of payments statistics.

The examination of the technological balance of payments of the US, Japan from 1993 to 2009 (Note 8) reveals that they have been constantly technology net exporters to the rest of the world. On the contrary the EU15's overall technological balance of payments used to be in persistent deficit since 1993. Nevertheless the situation changed, as Figure 2 shows it, and in 2006 the EU exhibited a surplus. This relies certainly on the performance of Northern European countries. Indeed Finland and Sweden increased highly their R&D spending as percentage of GDP and overtook Japan during the nineties.

Insert Figure 2 Here

Insert Table 2 Here

Table 2 presents TBP data for selected countries. Because of data non-availability, we do not have figures for the European Union as a whole. Moreover for some countries data are quite old (France for instance). In decreasing order the countries that record greatest surpluses are: the US, Japan, the UK, Germany, Sweden and Austria. The European countries exhibit contrasted situations but the ranking of European countries is not surprising as it fits in with GERD and BERD levels with the exception of the United Kingdom.

MNEs account for the greater part of international technology flows. Koopmann et al. (1999, p. 273) underline for example that "German companies with foreign subsidiaries in 1997 covered about three quarters of total receipts in manufacturing industry while nearly half of the corresponding payments were met by foreign controlled firms in Germany. In electronics the dominance of multinational corporations was almost complete". Nonetheless OECD data do not allow distinguishing between arm's-length and intra-group transfers of technology.

*4.2 Geographical Patterns of Technology Payments*

The geographical patterns of technology balance of payments are interesting (Table 3). Concerning the first group of European countries, we can notice that they always register positive balance of payments, which means they export technology. Among countries that display greatest surpluses, the United-States collect more technological receipts from all countries with the exception of France in 2008. It is not possible to exploit Japanese and UK data because the geographical break down is not available for these countries.

Among European countries, Germany, Sweden and Austria are the main exporters of technology. Germany has a deficit with European Union (EU27) as a whole and the US. Sweden on the contrary displays a surplus with the EU27 but a deficit with the US. Austria has surpluses both with the EU27 and the US. Sweden and Germany are the best European performers in Asia. While Sweden exports more technology to non-OECD countries, Germany exports to Japan and Korea.

The second group of countries register more contrasted results. Indeed, for instance France registers a positive balance while it is not the case for Belgium from the 2$^{nd}$ group. Belgium shows a surplus with Ireland. (Ireland exhibits its greatest shortages with the US and OECD countries whereas it presents surpluses with European Union countries).

Portugal has an interesting characteristic as it collects great amount of technology receipts from Africa and the world while it is in deficit with European and OECD countries. It seems that trade of technology is influenced by historical and cultural links just like trade flows.

To sum up, technological trade balance results by group of countries seem to indicate some interesting correlations between the TBP and R&D spending. As we have just noticed it, surpluses or deficits can vary from a partner country to the other one. So, a country that invests heavily in R&D does not export systematically to all its partners. Similarly a country, which does not invest much in R&D, does not systematically import technology from all countries. To better understand what explains these results, it could be interesting to deepen the analysis by studying more exactly the correlations between exports and imports on the one hand and spending in R&D on the other hand.

Insert Table 3 Here

*4.3 Links between OECD Countries Technological Profiles and Trade in Technology*

Insert Figure 3 Here

Figure 3 clearly shows a positive correlation between R&D spending and exports of technology. Thus, the more a country invests in R&D, the more it exports technology. Nonetheless it is also noteworthy that the more a country invests in R&D the more it imports technology, with the exception of Ireland.

Insert Figure 4 Here

Figure 4 displays GERD, exports and imports of technology in percentage of the GDP. The aim is to reduce the country size effect. The figure allows us to find the three main categories of countries previously identified. European leaders such as Sweden, Finland, Denmark, are on the one hand among the most dynamic in terms of R&D and on the other hand also among the most important exporters of technology. Germany, and smaller countries like Austria, Belgium and the Netherlands (naturally more opened in terms of trade contrary to bigger countries), which record less good results in terms of R&D export also technology. On the contrary Japan, Korea and Chinese Taipei (Taiwan), export and import few technology while they are leaders in R&D. The United States also exhibits weak export and import ratios as percentage of GDP. This is quite logical and due to the size effect. It would be very instructive if we could obtain more data disaggregated by sector and by countries to better identify the determinants of such exchanges. Unfortunately, this type of data is not available.

For countries that import more technology than they export, we can note that most of the time, those countries register less spending in R&D (Italy, Poland and Hungary) with the exception of Switzerland and Singapore (see Table 4). Maybe, those countries import more to make up the weakness of their R&D spending.

Concerning atypical cases as Singapore and Ireland, Table 4 highlights their specific features. Indeed, these countries display strong export and import of technology ratios as percentage of GDP. It could reflect their strong openness to FDI. Maybe, FDI and more precisely MNF can be the source of these possible numerous technology exchanges. These MNCs are operating in Ireland or Singapore and can generate large flows of technology.

Insert Table 4 Here

Thesefirst statistical resultsallow us to realizethat there is probablya linkbetweentechnological profileand exchange in technology. However, ascan be seenfor example for Finland, Sweden and Denmark, those countries which are heavily involvedin R&D, are certainly concerned by an international division of labour within the global market knowledge within Europe. These countries are indeed both exporters and importers. Also, several tracks seem to emerge. What about these results at the sector level? Differences will certainly be noted. What are the determinants for these exchanges?

## 5. Conclusion

Several facts confirm the growing international trade in technology. Indeed firms are not only developing innovations internationally, they are also exploiting their innovations on world markets by licensing their technologies or by selling their innovations to foreign purchasers (Gassler & Nones, 2008). The balance of payments statistics reflect this tendency as the volume of transactions is increasing.

From a statistical point of view, it is not easy to highlight some European specificity because data for European Union as a whole are missing. Nonetheless thanks to the OECD data, it is possible to depict some particularities.

Considering the traditional input / output analysis of innovative activities, we notice first that GERD and BERD of the European Union lag behind those of Japan, the United States and OECD countries with the exception of Sweden and Finland. Second innovative performances as measured by patent triadic families seem to be a little bit smaller for EU. However innovative activities in Europe are more internationalised as co-inventions are particularly superior.

Technology balance of payments data allows us to expose some additional results. We notice that countries for which GERD as percentage of GDP are particularly high, always register positive balance of payments, which means they export technology. But one interesting result of this paper is that leaders countries in terms of R&D spending both export and import more technology than the countries that do not invest much in R&D.

To conclude, it is important to notice, that data are missing despite the efforts made by the OECD to collect data on trade in disembodied technology. For instance disaggregated data into affiliated and unaffiliated disembodied transfers of technology are really difficult to obtain. Yet more empirical studies at the firm level would be necessary

to better understand the specificities of respectively arm's-length and intra-group transfers of technology. For instance, we could maybe better analysis Singapore and Ireland cases.

Furthermore, some characteristics seem to emerge to explain technological trade. It would be very interesting to deepen the analysis by examining the determinants of international technology trade in order to highlight their specificities.

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**Notes**

Note 1. For a definition of disembodied technology see Chang & Lee, 2006.

Note 2. According to Shih and Chang (2008), technology spreads internationally through two distinct kinds of spillovers: passive and active technology spillovers. *Passive technology spillovers* consist in the "implicit usage of the technological knowledge embodied in foreign intermediate goods for final-output production". A*ctive technology spillovers* are based on the "direct international learning or purchasing foreign technological knowledge involves the explicit usage of disembodied knowledge". On the contrary in this paper we will speak of *spillovers* to

designate international diffusion of technology, which relies on externalities, and *transfers* of technology and knowledge will refer to the purchase of disembodied technology.

Note 3. According to Maskus (2003) p. 15, international technology transfers can flow through market and non-market mechanisms or otherwise by "formal" and "informal" channels. The "market channels of international technology transfers include: trade in goods and services, foreign direct investment, licensing, joint ventures, cross-border movement of personnel" The Non-market channels or "informal" channels through which knowledge and technology may flow are: "a) Imitation b) Departure of employees c) Data in patent applications and test data d) Temporary migration."

Note 4. OECD (2008), Compendium of patent statistics, p. 30.

Note 5. On the contrary hiring directly a new skilled employee is considered as an embodied flow of knowledge.

Note 6. Science, Technology and Industry Scoreboard 2011, Highlights, p. 12.

Note 7. For a discussion about TBP' limitations see: Mucchielli J-L., N. Avallone and S. Chédor (2009), "Global trade in knowledge, a survey of the literature", OECD, DSTI/IND/WPGI/ (2009)6, Working party on globalisation of industry, October 2009.

Note 8. Denis C., K. Mc Morrow and W. Röger (2006) present data from 1993 to 2003.

Table 1. Science and innovation profile of the main OECD countries, 2008

| Groups of European Countries * | Countries | RD expenditure (GERD) (% of GDP) | Business expenditure of RD (BERD) (% of GDP) | Triadic patents per million population | Patents with foreign Co-inventors |
|---|---|---|---|---|---|
| | Japan | 3,42 | 2,69 | | |
| | USA | 2,77 | 2,01 | | |
| 1st | Sweden | 3,75 | 2,78 | | |
| 1st | Finland | 3.49 | 2.77 | | |
| 1st | Denmark | 2.72 | 1.91 | | |
| 1st | Austria | 2.67 | 1.89 | | |
| 1st | Germany | 2,64 | 1.85 | | |
| 2nd | France | 2 | 1.27 | | |
| 2nd | Belgium | 1.92 | 1.32 | | |
| 2nd | UK | 1.88 | 1.10 | | |
| 3rd | Netherlands | 1.75 | 0.89 | | |
| 3rd | Slovenia | 1.66 | 1.63 | | |
| 3rd | Luxembourg | 1.62 | 1.32 | | |
| 3rd | Portugal | 1.51 | 0.76 | | |
| 3rd | Czech Republic | 1.47 | 0,91 | | |
| 3rd | Ireland | 1.43 | 0.93 | | |
| 3rd | Spain | 1.35 | 0.74 | | |
| 3rd | Italy | 1.18 | 0.60 | | |
| 3rd | Hungary | 1 | 0.53 | | |
| 3rd | Poland | 0.61 | 0.19 | | |
| 3rd | Greece | 0.58 | 0.1 | | |
| 3rd | Slovak Republic | 0.47 | 0.2 | | |
| | EU 27 | 1,81 | 1,13 | | 10,82 |
| | OECD | 2.33 | 1.63 | | 7,70 |

Interpretation: White colour means that observed country's performances are inferior to OECD average but superior to the EU27 average.

Grey colour indicates that performance of the observed country is inferior to EU27 average. < Inferior to EU27 average.

Bright colour indicates that performance in the observed country is superior to the one observed in OECD. > Superior to OECD average.

*Source:* OECD SCIENCE, TECHNOLOGY AND INDUSTRY OUTLOOK 2008. NB: S&E: Science and engineering.

*Note:* * The ranking is based on GERD as % of GDP.

Table 2. Technology balance of payments for selected countries, 2008, Million of Euros

| Country / Area | Surplus (+) / Deficit (-) |
|---|---|
| **United States**[1] | 44 182 |
| **Japan**[2] | 10 988 |
| **United Kingdom** | 9 993 |
| **Germany** | 6 160 |
| **Sweden** | 3 797 |
| **Austria** | 2181 |
| **France**[3] | 1732 |
| **Finland** | 852 |
| **Italia** | 374 |
| **Czech Republic** | 102 |
| **Portugal** | 66 |
| **Slovak Republic**[4] | -214 |
| **Greece** | -392 |
| **Ireland** | -470 |
| **Hungary** | -690 |
| **Poland** | -1 254 |
| **Belgium** | -1 801 |

*Source:* Main Science and Technology indicators, 2010, OECD.

*Note:*[1] Royalties and licence fees, [2] 2007, [3] 2003, [4] 2005.

Table 3. Technology balance of payments by main partner zone/country, 2008*, million of EUR

| Groups of European countries | | | 1st | 1st | 1st | 2d | 2d | 3d | 3d | 3d | 3d | 3d | 3d | 3d |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Partner zone or country | Japan | USA[b] | Sweden | Austria | Germany | France | Belgium | Italy[a] | Czech Rep. | Portugal | Greece | Hungary | Slovak Republic | Ireland |
| AFRICA | | | 662 | | 511 | | | | | 173 | | | | 496 |
| Austria | | | | | -794 | | | | | 4 | | | -29 | |
| Belgium-Luxembourg | | | 225 | | | | -140[c] | 264 | 15 | 5 | | 180 | 5 | 752 |
| Canada | | 3 557 | | | | 61 | | | | | | | | |
| China | | | 342 | 149 | 647 | | | 42 | | | | | | |
| Czech Republic | | | | | | | | | | | | | -108 | |
| Denmark | | | | | | | | -23 | | 8 | | | | |
| EUROPEAN UNION (27)[$] | 1 527 | 20 501 | 787 | 835 | -399 | 218 | -653 | -162 | -97 | -115 | -355 | -49 | -112 | 8194 |
| Finland | | | | | | | | | 11 | | | | | |
| France | | -345 | 1 018 | | -369 | | -143 | -320 | -103 | 4 | -23 | 37 | -7 | 2215 |
| Germany | | 3 413 | -292 | 721 | | | -146 | 163 | -49 | -59 | -46 | -369 | -52 | |
| Greece | | | | | | | | | | | | | | |
| Hungary | | | | | 429 | | | | 14 | -14 | | | -6 | |
| Ireland | | | | | -974 | 78 | 130 | -26 | | -38 | | | | |
| Israel | | | | | | | | | | | | | | 159 |
| Italy | | | | | | 97 | -183 | | | 15 | -37 | | | -32 |
| Japan | | | | | 1017 | 255 | -138 | | -84 | | | 85 | | |
| Korea | | 2 155 | | | 304 | | | | | | | -83 | | |
| Mexico | | | | | 487 | | | | | | | | | |
| Netherlands | | | | | | 54 | -222 | 48 | 39 | 21 | -78 | | -9 | 1390 |
| MIDDLE EAST | 198 | | 1 022 | 198 | 363 | | | | | 6 | | | | |
| NON-OECD ASIA | | 5 730 | 1 838 | 213 | 874 | 68 | | | 12 | -7 | | 58 | | |
| Norway | | | | | | | | | | 3 | | | | 415 |
| OECD (30) | | | 1 021 | 1 165 | 2617 | 646 | -2389 | | -123 | -115 | -348 | -340 | | -1194 |
| Poland | | | | 128 | | | | 40 | 10 | | | | 2 | 465 |
| Portugal | | | | | | | | | | | | 52 | | |
| Russia | | | | 147 | 377 | | | | 150 | | | | | |
| Singapore | | 2 111 | | | | | | | | | | | | |
| Slovak Rep. | | | | | | | | | 61 | | | | | |
| SOUTH AMERICA | 334 | 2 336[e] | | | 1052 | | | | | | | | | |
| Spain | | | | | 676 | 130 | | 17 | | -47 | | 116 | | |
| Sweden | | | | | | -348 | | | | -18 | | 57 | | |
| Switzerland | | 3 762 | 709 | 304 | 2118 | -54 | -97 | -106 | 12 | -19 | | | | 850 |
| Turkey | | | | | | | | | | | 21 | | | 192 |
| United Kingdom | | 3 927 | | -478 | -734 | 127 | -218 | -303 | -50 | -5 | -106 | | -16 | |
| United States | 3 517[d] | | -469 | 104 | -1029 | | -1049 | -24 | 47 | 15 | -51 | -277 | 6 | -11208 |
| WORLD | 10 988 | 44 182 | 3797 | 2 181 | 6160 | 1732 | -1801 | 374 | 102 | 66 | -392 | -690 | -214 | -470 |

*Note:* * Except for Japan, Sweden: 2007, Slovak Republic: 2005, and France: 2003. [$]Europe for Japan, EU 25 for Sweden and the US. Data are not available for the UK and Finland.15 For France, Poland and Slovak Republic. [a] Figures for OECD (30) non available. [b] US Royalties and licence fees. [c] Luxembourg. [d] North America. [e] South and Central America.

Table 4. Export, import and spending in R&D for Ireland and Singapore, 2009*, in percentage of GDP

| | Export/gdp | Rd/gdp | Import/gdp |
|---|---|---|---|
| **Ireland** | 16,6 | 1,7 | 18,9 |
| **Singapore** | 3,2 | 2,3 | 9,3 |

Table 5. Technology balance of payments for selected countries, 2009, Million of Dollars

| Countries | Surplus (+) / Deficit (-) |
|---|---|
| **United States** | 33249,0 |
| **United Kingdom** | 19005,5 |
| **Japan** | 15821,6 |
| **Germany** | 8729,7 |
| **Sweden** | 6946,0 |
| **Netherlands** | 3504,2 |
| **Norway** | 3355,7 |
| **Austria** | 2767,3 |
| **Denmark** | 1730,3 |
| **Belgium** | 1029,4 |
| **Finland** | 440,5 |
| **Portugal** | 135,8 |
| **Romania** | -57,1 |
| **Spain** | -92,6 |
| **Luxembourg** | -289,0 |
| **Slovenia** | -315,8 |
| **Slovak Republic** | -359,7 |
| **Greece** | -606,0 |
| **Russian Federation** | -965,6 |
| **Poland** | -1510,4 |
| **South Africa** | -1595,0 |
| **Mexico** | -1945,6 |
| **Chinese Taipei** | -2316,8 |
| **Switzerland** | -2484,1 |
| **Korea** | -4856,2 |
| **Ireland** | -5056,7 |
| **Italy** | -5405,8 |
| **Singapore** | -11151,0 |

*Source:* Main Science and Technology indicators, 2011, OECD.

*Note:* [1] Royalties and licence fees, [2] 2007, [3] 2003, [4] 2005.

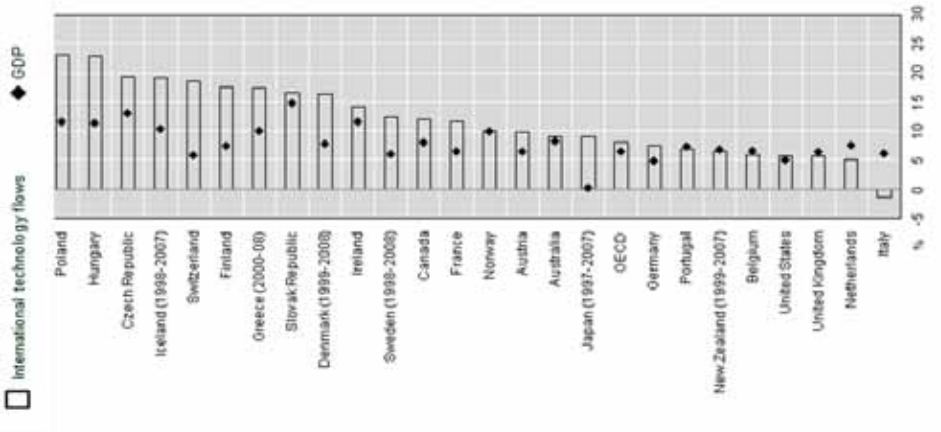


Figure 1. International technology flows* (royalties and license fees), 1997-2008, Average annual growth rate, based on USD, percentage

*Source:* OECD, Technology Balance of Payments Database, December 2009; and OECD, Trade in Services Database, December 2009.

*Note:* * Technology flows refer to the average of technological payments and receipts. Measuring innovation: a new perspective, OECD p. 106.

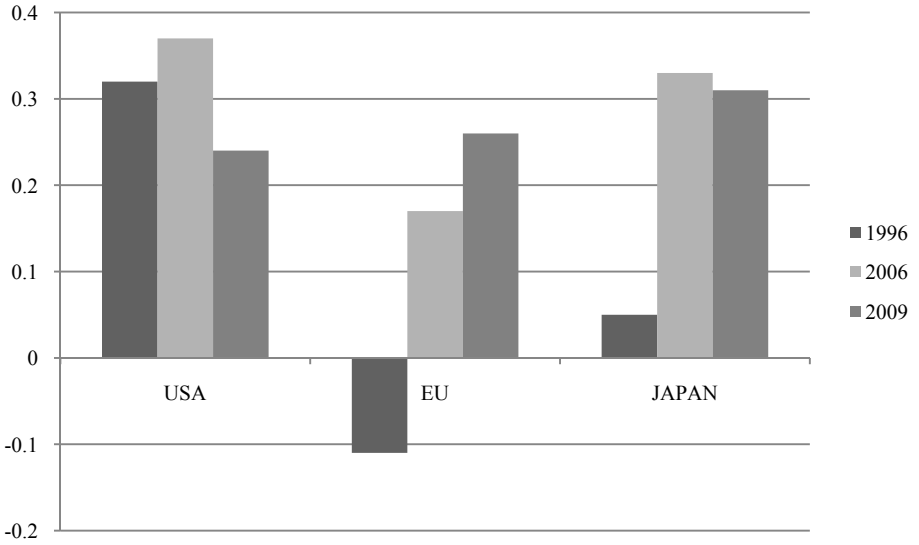


Figure 2. Technology Balance of Payments (1996, 2006, 2009), % of GDP*

*Source:* OECD Science, Technology and Industry Scoreboard 2009 for 1996 and 2006. For 2009, estimations calculated by the authors from MSTI OECD 2011.

*Note:* * For EU15, data include intra-area flows andare partially estimated (excluding France in 2009; Denmark and Greece in 1996, 2006).

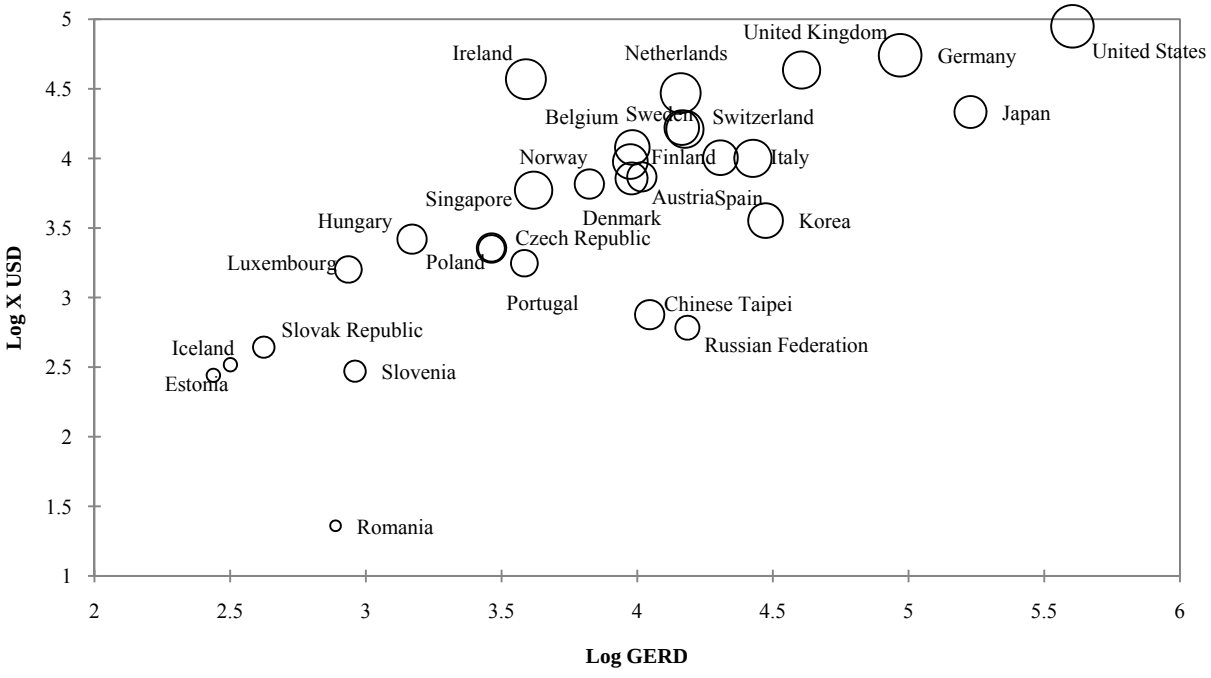


Figure 3. GERD (X axis), exports (Y axis) and imports (size of circle) of technology, million USD, 2009

*Note*: * Log-Log data.

*Source:* MSTI OCDE 2011.

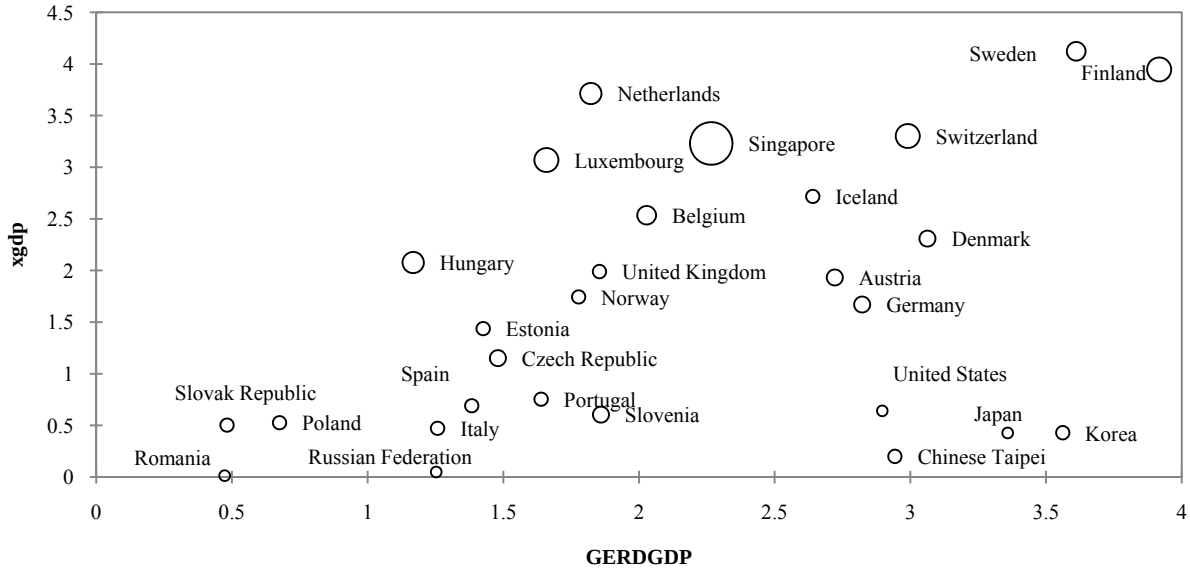


Figure 4. R&D (GERDGDP), export (xgdp) and import (mgdp, size of circle) of technology in % of GDP, 2009

*Source:* MSTI OCDE 2011.

# The Innovation Management and Partnerships (Knowledge Flow) of the Finnish Small Low Tech Companies

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**Abstract**

The purpose of this paper is to examine small- to medium-sized enterprises (SMEs) partnerships and co-operation utilization within innovation processes. Industrial firms are gaining ideas for innovation from various sources and their innovative performance depends, besides their internal knowledge resources, also on how successful they are at appropriating knowledge from external sources. This seems to be true also with smaller, low tech and remote firms. According to analysis of Finnish data small low tech companies have a growth oriented innovation activity. The main findings from Finnish cases show that when the renewal is important at the firm level only, cooperation with business partners (consultants, suppliers) is emphasized; however, when the renewal is important at market level then the public sector cooperation with universities etc. is emphasized. 25% of the studied companies had university co-operation. Informal co-operation and short-term education was seen the most important forms of co-operation. The study of SME innovation in Eastern Finland is included in which implemented innovations during 2003−2005 were investigated. This paper is based on a quantitative study of a sample of SMEs located in the Eastern Finland region in Finland. The entrepreneurs completed a research questionnaire which was sent to 3226 entrepreneurs. 381 completed answers were received and the response rate was modest 11,8%, the final analyzed data contains 370 completed answers. The results suggest that the largest backlog appears to be in utilizing universities and public research organizations. The choices of knowledge sources can be attributed to different capabilities of firms and network partners (consumers, universities etc.) in creating and utilizing (exploitation and exploration) respective innovation-enhancing knowledge. Universities and consulting firms also need to exploit new knowledge created in science, practice and by end-users. This means a challenge for universities and other actors to develop their services and capabilities to meet the needs of SMEs and the manner of SMEs to implement innovation processes hand in hand with daily business.

**Keywords:** Small to Medium-sized Enterprises, Innovation, Innovation management, Company performance, Co-operation, Finland

## 1. Introduction

Innovation requires creating new knowledge or combining existing knowledge in a novel way. Therefore it rests on learning, which is largely a social process, especially when transfer and accumulation of tacit knowledge is concerned (Polanyi, 1966; Howells, 1995). The capability of a firm to innovate is expanded by broader knowledge base and cost and risk sharing through cooperation with other subjects (suppliers, clients, competitors, universities etc.) (see also Rothwell, 1991; Freel, 2000). Firms need considerable in-house capabilities to recognise and evaluate the new knowledge and technology and thereafter to negotiate and adopt this technology (Cohen & Levinthal, 1990).

Consultants and knowledge intensive business services (KIBS) are used as a more formal and costly way of innovating when the firms own knowledge resources are not sufficient. They are used for several activities (product,

process and design innovation etc.), and the relative importance of these activities probably depends more on the type of innovative activities currently relevant for that specific industry (Ukrainski, 2008).

Universities contribute to local innovation processes in a variety of ways, but most importantly by education and technology transfer. In addition to their own discoveries, universities can help to attract new human, knowledge, and financial resources from elsewhere. This is becoming even more important as globalization has moved into third, metanational phase meaning for example knowledge "hunting" from global sources (Doz *et al.,* 2001). Mode 2 model of knowledge formation emphasizes multidisciplinary approach and knowledge transfer by informal ways during the ongoing research (Nowotny *et al.,* 2004). There are challenges for universities and regional innovation environment arising from too little geographical proximity (Boschma, 2005). The availability of expertise in universities is a crucial factor in industry–public sector research linkage. Faulkner *et al.* (1995) show that the low level of the use of public research institutes as knowledge sources does not imply a lack of research interest in industry, but rather the paucity of available specific public knowledge and modern equipment vital for development. The industry-academia knowledge exchange is recently lively discussed by academics and politicians. In addition for the technology and science based "waterfall" model, other approaches have been introduced. These include, e.g., practice-based and demand-driven models, DUI-model (doing, using, interacting), distributed innovation and non-R&D innovators (Cooke *et al*., 1997; Arundel *et al.,* 2008).

In the knowledge exchange with universities, it is found that firms' size constraints are even more important than sectoral specificities, because SMEs face considerable resource constraints to both, formal and informal linkages; and communication problems (Faulkner *et al*., 1995; Corsten, 1987). The basic issue for a SME is finding a person, enterprise or research organisation providing specific complementary knowledge and combining that new knowledge with the existing one so that it results in new approach and innovation. Faulkner *et al.* (1995) have found that the recruitment policy is relevant because of the networks new employees can bring to the firm (e.g. employees with doctoral or post-doctoral experience usually have networks within academia, but also know literature sources). The other factors they suggest are the proprietary concerns of the firm, but also the openness of senior R&D staff, which from one side reflects the organisational culture, but from the other side also influences it.

The utilization of different kinds of information sources and collaborative relationships are associated with introduction of innovations (e.g. Bigliardi & Dormio, 2009; Tödtling *et al*., 2009; Freel & de Jong, 2009; Lockett *et. al*. 2009; Rossi 2010; Varis & Littunen, 2010). Cohen and Levinthal (1990) state that a firm must have strong internal capabilities and knowledge base in order to innovate and benefit from external information sources. Tether (1998) argues that the understanding of innovations in SMEs is vastly important yet the amount of research conducted reflects the controversy around the innovation phenomenon. For this purpose this paper contributes to the complex yet still particularly essential phenomenon of SMEs partnerships and co-operation utilization within innovation processes.

The purpose of this paper is to examine small- to medium-sized enterprises (SMEs) partnerships and co-operation utilization within innovation processes. Industrial firms are gaining ideas for innovation from various sources and their innovative performance depends, besides their internal knowledge resources, also on how successful they are at appropriating knowledge from external sources. This seems to be true also with smaller, low tech and remote firms.

Our principal research questions may be formulated as follows:

RQ1. What are the main sources for partnership (knowledge flow) for SMEs?

RQ2. What are the main challenges for SMEs to utilize partnership with business partners and public sector?

## 2. Literature Review

Knowledge interactions between fields of science and economic sectors are quite dispersed and do not follow obvious or simple patterns (Ukraenski & Kajanus, 2011). Firms in traditional sectors are mostly not considered to have a close knowledge exchange with a public sector R&D base, but some empirical studies point to the contrary – the industries under discussion revealed higher intensities of interactive learning with universities. Meeus *et al.* (2004) have found that firms with moderate strength of internal knowledge resources, but also firms creating innovations with moderate complexity have higher probabilities for interactions with public R&D base compared to low and high levels of expertise and complexity.

Most important sources of knowledge relevant in all stages of innovation process are located inside the firm (Ukraenski & Kajanus, 2011). Basic skills of employees, but also their broader knowledge of modern scientific and technological developments is relevant for absorbing the knowledge from external sources (Cohen & Levinthal, 1990). The internal innovation capabilities are enhanced by R&D activities in a certain technological field, but there is a kind of technological capability relevant especially to firms in low- and medium-technology (LMT) industries

such as wood-related ones. This is the capability to introduce new combinations of existing technologies (including architectural capabilities elaborated by Henderson and Clark, 1990). Such capabilities are not reflected in industry's R&D intensities or educational indicators, but competitive markets force the companies in wood sector to be very creative regarding the capabilities of running and readjusting their machinery and equipment. As discussed by Hircsh-Kreisner *et al.* (2003), this demands from firms more tacit knowledge and captures practical engineering problem-solving by engineers and technicians, but also by shop-floor workers. Laestadius (1995) argues that this kind of knowledge in the firm supports also the innovation stemming from external sources to the firm (through collaboration with universities, R&D-institutions or suppliers of machinery and equipment).

Typical IP measures targeted to improving internal knowledge bases of firms are related to training, mobility and subsidisation of specific R&D activities. Forsman (2009) emphasises that enterprises already having appropriate innovation capabilities can best benefit from the provided IP instruments. Highly conceptualized policy instruments meet the needs of large enterprises characterized by efficient internal innovation development processes and clear resource allocation for it (Schumpeter Mark II). Variety of discontinuous public services is focused on accelerating the individual phases of the innovation process. By contrast, the development work in SMEs is fuzzy in nature and goes hand in hand with their daily business without a special development budget. Therefore Forsman (2009) suggests an alternative path for innovation policy: first, starting to improve capabilities for the development of incremental innovations, then forging ahead via radical innovation development. This process can lead to a success spiral that accelerates internal capability building overlapping with innovation development – a continuous and diversified innovation flow as an outcome. This insight is supported also by recent surveys in Europe finding that more than 50% of innovative firms innovate without carrying out R&D (Arundel *et al.,* 2008). They are smaller, active in LMT sectors and located in areas with relative poor innovation infrastructure. However, they are growing at the same rate as their R&D performing counterparts. Arundel *et al.* (2008) bring out several different ways to innovate besides R&D: technology adoption, minor modifications or incremental changes, imitation including reverse engineering, combining existing knowledge in new ways and adopting solutions developed by users (Ukraenski & Kajanus, 2011).

Most external knowledge sources are used to enhance innovation with complementary knowledge but also to reduce associated risks and costs (Ukraenski & Kajanus, 2011). Linkage with suppliers is based on either making or buying relations (Teubal *et al.*, 1991). Amara and Landry (2005) suggest that users are exploited as information source by firms that initiate innovations as the world's first introductions rather than as incremental innovations. Suppliers and customers are sources of foreign knowledge for a firm through exporting goods and services or importing materials and technology as discussed widely in spillovers literature. Both of these partner types have been recognized as a source of innovation knowledge not only for developing processes, but also in developing new products and services and even design activities. Organisational, risk and labour barriers influence knowledge exchange with external partners in a similar way, but the financial constraints have been found to be less relevant in case of suppliers. In some studies, exporting firms have been found to exert greater pressure for upgrading technologies and cooperating more with suppliers.

Openness of knowledge may speed up the pace of innovation as competitors are able to build on other innovators' advances rather than being allowed to block the progress of others (Foray, 1997). Amara and Landry (2005) have concluded on the basis of the existing literature that the information obtained from competitors is related to the increased complexity and intersectoral nature of new technologies, the reduction of uncertainty and R&D costs associated with market access, or the development of product and process innovations (by acquisition and appropriation of the partner's tacit knowledge, uptake of codified knowledge; by reduction of the period between invention and market introduction). However, collaboration with competitors is different because it is typically more informal (although it can also be formalised via R&D contracts or collaboration activities via industry associations). It is not clear however, which part of the knowledge is exchanged – technological, design or market knowledge, or all of the aforementioned.

Freel and Harrison (2006) found that small and middle-sized industrial firms were oriented in their co-operation significantly more to customers and to suppliers than to universities, which are confirmed in this study. They found that significantly many firms weren't in co-operation with other organizations and that the co-operation isn't especially important to firms. They found that the most innovative firms were more oriented in co-operation in their innovation activity. This finds support in the results of this study. They found that in industrial firms in the case of the development of radical innovations, firms were more often in co-operation with other organizations and results of this study confirm this. They found that the most innovative firms had more co-operation with other firms and public sector than other firms.

Soderquist et al. (1997) found that in the innovation activity the most important factors were the needs of the customers, close relations with clients and the operation of the research and development department. The importance of customer relations is shown in this study. For innovation processes the greater co-operation in the firm is important. In this study internal co-operation was found rather important but its importance was highly different among industries.

Koch and Strotmann (2008) found that the knowledge intensive service firms developed a lot of radical innovations, but the results of this study are highly different.

Jenssen and Nybakk (2009) found that external relations are important for small knowledge intensive firms in their in innovation activity. This study found that innovative firms are oriented to co-operation more than firms that aren't as innovative.

Hartman et al. (1994) found that innovative ideas were far more common in top management level than in middle management level and in operative level. In this study it was found that an idea from the customer to the entrepreneur was far more common as a source of renewal than an idea from the customer to other member of the staff.

Freel and de Jong (2009) found that radical innovations were far more linked to co-operation of the firms than other types of innovation and it was found that the radical innovations were far more linked to other firms as sources of innovations than firms that developed other types of innovations. This doesn't find support from the results of this study, to some extent the results are different.

Freel (2005) found that middle level innovators were far more oriented to co-operation with other firms. This finds significant support from the results of this study. It was found that firms that are oriented to develop radical innovations are bigger than other firms. In this study it was also found that the market level top innovators and firm level middle innovators were far bigger than other firms.

Varis and Littunen (2010) found that different regional institutions weren't important as co-operation partners or as sources of information. The results of this study are similar. The aforementioned co-operation partners were by far the most important co-operation partners to the firms. The firms in the study are rather low technology firms and that is why the different technology institutions weren't of significant use to them. Varis and Littunen (2010) found that the entrepreneurs regard the competition factors of the entrepreneur and the staff, the initiatives and training of the staff and the organized and unorganized communication not as important sources of innovation. In this study it was found that competitiveness is rather important to the firms and by far most important to market level top innovators and that the own staff was important as a source of innovation in agriculture firms, wholesale and retail firms and in social services firms, and on average it was rather important to the firms. Internal co-operation, which is linked to communication, is a significant factor as a source of innovation to most of the industries. While the training of the staff wasn't examined as a source of innovation, it was important to the firms as a means to develop the know-how.

## 3. Methodology and Data

This paper is based on a quantitative study of a sample of SMEs located in the Eastern Finland region in Finland. The entrepreneurs completed a research questionnaire which was sent to 3226 entrepreneurs. 381 completed answers were received and the response rate was modest 11,8% yet still statistically valid, the final analyzed data contains 370 completed answers.

The quantitative database needed for this study was collected from joint database of Trade Register of Finland, Statistics Finland, Finnish Asiakastieto Ltd and Fonecta Ltd. The joint database includes all registered companies in Finland and it is widely used in data collection for scientific studies and questionnaires. The 3226 companies were located in Eastern Finland in Finland. Collected data included following information from 3226 companies: Company name and registration number, company address, postal code and post office, company official address, company telephone and fax, company email and www-address, company main industry (+ 3 side industries if available), head office and side office status, export and import status, turnover, personnel, profit and balance sheet, business result %, turnover / person, turnover change %, self-sufficiency and foundation year.

Target group was collected from the 3326 (all companies were located in Eastern Finland in Finland) company data by using the following two criteria. Personnel classification: Unknown, 1-4 personnel, 5-19 personnel and 20-49 personnel. Office location: Head office and side office. The data included the following company forms (legal forms in Finland): Partnership, limited partnership, sole trader, limited company, cooperative and other legal form.

Questionnaires were mailed to target group SMEs totaling 3226. It was planned so that respondent had the possibility to answer by filling up the questionnaire and returning it by mail, the return envelope was enclosed to

each questionnaire. The respondent had also a possibility to answer in web, the instructions and the address for the web answer possibility was enclosed in the covering note. Eccu Finland Ltd. planned and constructed the web-questionnaire page. Eccu Finland Ltd. also activated companies which had not answered in time. The activation included phone calls, emails and text messages. The received answers were entered to database where the data was composed to Excel-format.

Received data by phone interviews was 28,1% (107 companies) of all companies. Email was sent to 206 companies of the target group and by text messages 200 companies were activated to answer the questionnaire. 29,9% (114 companies) of all answers were done before activation and after the activation was completed 70,1% (267 companies) answered.

Overall 51,2% (195 companies) answered by letter, 20,7% (79 companies) answered by web questionnaire page and 28,1% (107 companies) were interviewed by phone. Overall 381 companies out of 3226 answered the questionnaire.

This paper is based on a quantitative study of a sample of SMEs located in the Eastern Finland region in Finland. The entrepreneurs completed a research questionnaire which was sent to 3226 entrepreneurs. 381 completed answers were received and the response rate was modest 11,8 %, the final analyzed data contains 370 completed answers. At present the data has been analyzed by composing the basic distributions. The importance and dependence of executed renewals in the SMEs co-operation and partnerships utilization were examined for this paper. The data is quite heterogeneous so we assumed that variables are not linear with symmetric Gaussian distribution.

## 4. Analysis and Results

### The Factors Restraining and Advancing SMEs Renewal Processes

According to results the data suggests that there are several factors restraining and advancing SMEs renewal processes. SMEs valued co-operation with clients as the most important advancing factor for their businesses. They also valued company's internal knowhow and co-operation and the overall willingness for innovations and renewals. Other quite important factors were infrastructure, information related to customers, markets and research and development, competitiveness of the company and innovation cycle. Factors that are restraining SMEs renewal processes are availability of skilled personnel and risk taking capability.

### SMEs Possibilities to Improve Knowhow

According to the results there are also several factors that SMEs are implementing to improve the innovation processes. According to the data SMEs are hiring new personnel to improve innovation processes and they are obtaining knowledge transfer from other organizations, they are also encouraging personnel to education and SMEs are also attending to training seminars. SMEs are also seeking the needed data from literature, data bases, Internet and by knowledge transfer from customers.

According to analysis of Finnish data small low tech companies have a growth oriented innovation activity. The main findings from Finnish cases show that when the renewal is important at the firm level only, cooperation with business partners (consultants, suppliers) is emphasized; however, when the renewal is important at market level then the public sector cooperation with universities etc. is emphasized. 25% of the studied companies had university co-operation. Informal co-operation and short-term education was seen the most important forms of co-operation.

Insert Table 1 Here

Insert Table 2 Here

Insert Table 3 Here

According to analysis the data shows that in the SMEs innovation process and in overall innovation management is improved and restrained by several individual factors. The company needs to keep its internal renewal continuous, internal co-operation must be kept in the core of improvement, renewal willingness and will needs to be high, know-how needs to be also emphasized and the co-operation with customers has to be valued high in the innovation process. The data shows that innovation process in the SMEs is restrained by the lack of qualified personnel and by the low willingness to take any major risks involving innovations.

The data also shows that the co-operation with universities is understood valuable. According to the data 25% of the studied SMEs had co-operation with universities. The analysis shows that informal co-operation and short-term education was seen as the most important co-operation forms. The data also shows that project work, agreement based co-operation and student works (thesis etc) was seen also important co-operation forms.

## Analysis

### Factors That Further or Constrain the Innovation Activity of the Organization among All Firms

Insert Table 4 Here

The firms have rated co-operation with customers and the know-how in the firm by far the most important factors in implementing the renewal actions. They are also most important to innovators, still they are important to all firms. Also the willingness to renew, that is least important to the least innovative firms both in the market and firm level, the internal co-operation and the renewal speed, that is most important to firm level top innovators, were among the most important factors. The location in relation to customers was by far most important to firm level innovators. The availability of the market information is by far most important to innovators. The availability of premises, machinery and tools is most important to firm level innovators. The co-operation with other firms is most important to innovators. The competence is by far most important to market level innovators, while the financing opportunities are by far the weakest for market level innovators. The availability of business services, that is most important to market level innovators, the willingness to take risks, that increases linearly with the innovation level, and the availability of competent workforce, that isn't as constraining to innovators than to other firms, were the most constraining factors in the renewal of the firm. Most of the factors don't further or constrain the renewal actions.

### Factors in Starting the Renewal Actions

Insert Table 5 Here

The firms have rated the willingness to utilize the know-how of the staff of the firm, which is most important to innovators, and the market niche, that is by far the most important factor for market level innovators and for innovators on average, as the most important factors in starting the renewal actions. The competing innovation is most important to market level top innovators and to the innovators on average. The willingness to utilize the know-how of the staff and the market niche for a new product or service have been by far the most important factors in starting the renewal actions. The participation in projects and a scientific breakthrough or a new technology have been by far the least important factors in starting the renewal actions, quite expectedly, because the firms are small and not particularly technology-intensive. The participation in projects has been by far most important to market level innovators, but it isn't especially important even to them.

### Sources of Renewal Actions

Insert Table 6 Here

The most important factors as sources of the renewal actions were an idea from customer to the entrepreneur or the management, the firm's own staff and the conversations with entrepreneurs from other industries. Professional literature and other publications, an idea from the firms of the own industry and an idea from the customer to other members of the staff have also had some significance. The professional literature and other publications are the more important the lower the level of innovation and what is interesting is that participation to projects is most important both to most innovative and least innovative firms, although it isn't especially important to even them. Co-operation with research and development institutions is by far most important to market level innovators, but it isn't especially important even to them.

### The Means in Developing the Know-how of the Firm

Insert Table 7 Here

The firms have rated the information obtained from the customers that is most important to innovators and increases linearly with innovation level, by far the most important factor in order to utilize different means in developing the know-how. Also the participation of the staff to training events, that is most important to middle-level innovators both in market and firm levels, written materials, databases and the Internet, encouraging the staff to study individually, that is most important to market level innovators at middle level, and information obtained from other firms are quite important. The written material and databases and the Internet were nearly as important to top and middle level innovators at firm level, but at the market level they were far more important to middle level innovators. The recruitment of new staff and participating in projects have been by far most important to market level innovators.

### Instant Business Development

Insert Table 8 Here

The firms have rated lectures, seminars and short interval training and free co-operation, that is by far most important to innovators both at market and firm levels, as the most important means in co-operation in instant business development.

Fifth of the firms have participated to EU projects that try to develop and renew the business of the firm. The firms have rated these projects quite useful, the average was 3,31.

The firms have experienced the market growth during the years 2003-2005 to average 3,5 and the increase of competition during the years 2003-2005 to average 3,77, and these should be indicative of the need to develop innovations.

The most common co-operation partners were other firms, the municipal industry services and the development companies.

The firms were most satisfied to other firms, for which the average was 7,85, to polytechnic schools, for which the average was 6,74, and to the entrepreneurial unions and associations, for which the average was 6,71 and to Finnvera, for which the average was 6,68. There are a lot of parties that were only rarely contacted. Lot of firms probably feel that these are quite distant from their point of view and that they are of little use in business development.

The firms were moderately satisfied to polytechnic schools and vocational institutions, while they weren't so satisfied to the universities. Polytechnic schools were contacted twice more often than the universities.

**Industrial Firms**

**Factors That Further or Constrain the Renewal Actions**

Insert Table 9 Here

The industrial firms have rated the know-how and the co-operation with customers as the most useful factors that further the renewal actions. For industrial companies the co-operation with other firms is more important than to the firms on average and also the co-operation with other firms and the speed of renewal are quite important factors. The internal co-operation and the willingness to renew aren't as important to industrial firms as to the firms on average. The willingness to renew is far more important to innovators than to other firms. Internal co-operation and financing opportunities are by far most important to firm level innovators. It is noticeable that for top innovators at the market level the location to business partners and customers is far less important than to the firms on average or than to the firm level innovators. For industrial firms the availability of competent workforce is considerably more important in implementing renewal actions than to the firms on average. The only constraining factor on average is the willingness to take risks, but to the innovator firms it is too far lesser extent a constraining factor, especially to market level innovators.

**Factors in Starting the Renewal Actions**

Insert Table 10 Here

The willingness to utilize the know-how and ideas of the staff and the market niche have been the most important factors in starting the renewal actions, while participation in projects and scientific breakthrough or a new technology haven't been especially important, yet projects are far more important to innovators. The market niche and also the competing innovation is far more important to market level innovators than to other firms. The price competition isn't as important to innovators as to other firms. The willingness to utilize the know-how and ideas of the staff has been more important to the firms than to the firms on average. Also the market niche and participating in projects have been more important to the firms than to the firms on average.

**Sources of Renewal Actions**

Insert Table 11 Here

The firms have rated an idea from the customer to the entrepreneur or the management by far the most important factor as a source of renewal. Also the staff of the firm, which is most important for market level innovators, and the conversations with entrepreneurs from other industries have been quite important. For the industrial firms an idea from customer to the entrepreneur has been far more important factor as a source of renewal than an idea from customer to other member of staff. This denotes the largest difference among industries. Ideas from the customer to the entrepreneur or to other member of the staff have been more important to firm level innovators than to other firms. Participation into projects is far more important to innovator firms than to other firms and also business counseling is more important and co-operation with educational institutions is more important.

An idea from the customer to the entrepreneur has been far more important for the industrial firms as a source of renewal than for firms on average. Participation to fairs, seminars and training events and co-operation with educational institutions and research institutions has been more important to industrial firms than to firms on

average. The firms have rated the market level innovations to average 2,67 and the firm level innovations to average 2,77 which aren't especially high.

**Means in Developing the Know-how in the Firm**

Insert Table 12 Here

Information obtained from customers has been by far the most important factor. In the case of the industrial firms its superiority to other factors in this dimension is greatest among the industries and it is by far most important to firm level innovators. Information obtained from other firms and participation to projects are more important than to firms on average and especially the participation into projects is far more important to the innovators. The firms have rated the recruiting of new employees more important than firms on average. The firms have rated encouraging the staff to study individually not as important as the firms on average and it is more important to innovators.

**Instant Business Development**

Insert Table 13 Here

The firms have rated theses as more important than the firms on average and they are far more important to firm-level innovators than to other firms. Contract-based co-operation is far more important to market level innovators than to other firms. The firms have rated lectures, seminars and short interval training not as important as the firms on average.

Industrial firms were far more active in participating to EU projects than the firms on average. The firms rated these projects to average 3,55, which means that they were quite useful.

The firms experienced the market growth to average 3,45 and the increase of competition to average 3,61 and these are relatively high.

The most common co-operation partners for the industrial firms were other firms, the development companies and the municipal business services. The firms were most satisfied to other firms to average 8,73, municipal business services to 7,61 and Finnvera to 7,21 and Tekes to 7,17. The industrial firms were by far most satisfied to other firms as co-operation partners.

The analysis of specific industry; wholesale and retail, knowledge intensive companies, transport, construction, accommodation and restaurant, social services, culture and free time and agriculture firms.

## 5. Discussion and Conclusions

Our main results suggest that the largest backlog appears to be in utilizing universities and public research organizations. The choices of knowledge sources can be attributed to different capabilities of firms and network partners (consumers, universities etc.) in creating and utilizing (exploitation and exploration) respective innovation-enhancing knowledge. Universities and consulting firms also need to exploit new knowledge created in science, practice and by end-users. This means a challenge for universities and other actors to develop their services and capabilities to meet the needs of SMEs and the manner of SMEs to implement innovation processes hand in hand with daily business.

The purpose of this paper is to examine small- to medium-sized enterprises (SMEs) partnerships and co-operation utilization within innovation processes. Industrial firms are gaining ideas for innovation from various sources and their innovative performance depends, besides their internal knowledge resources, also on how successful they are at appropriating knowledge from external sources. This seems to be true also with smaller, low tech and remote firms.

Our principal research questions are as follows:

RQ1. What are the main sources for partnership (knowledge flow) for SMEs?

RQ2. What are the main challenges for SMEs to utilize partnership with business partners and public sector?

According to analysis of Finnish data small low tech companies have a growth oriented innovation activity. The main findings from Finnish cases show that when the renewal is important at the firm level only, cooperation with business partners (consultants, suppliers) is emphasized; however, when the renewal is important at market level then the public sector cooperation with universities etc. is emphasized. 25% of the studied companies had university co-operation. Informal co-operation and short-term education was seen the most important forms of co-operation. Our analysis suggests that in the SMEs innovation process and in overall innovation management is improved and restrained by several individual factors. The company needs to keep its internal renewal continuous, internal co-operation must be kept in the core of improvement, renewal willingness and will needs to be high, know-how needs to be also emphasized and the co-operation with customers has to be valued high in the innovation process.

The data shows that innovation process in the SMEs is restrained by the lack of qualified personnel and by the low willingness to take any major risks involving innovations.

According to the results there are also several factors that SMEs are implementing to improve the innovation processes. According to the data SMEs are hiring new personnel to improve innovation processes and they are obtaining knowledge transfer from other organizations, they are also encouraging personnel to education and SMEs are also attending to training seminars. SMEs are also seeking the needed data from literature, data bases, Internet and by knowledge transfer from customers. The data also shows that there are factors that are affecting negatively to SMEs utilization of partnerships and co-operation. Although the need for skilled personnel is seen as s possibility to improve but it is also restrain for companies. The data suggests that the risk taking capability is also restraining the companies to utilize the maximum of partnerships and co-operation with business partners and public sector.

The data also shows that the co-operation with universities is understood valuable. According to the data 25% of the studied SMEs had co-operation with universities. The analysis shows that informal co-operation and short-term education was seen as the most important co-operation forms. The data also shows that project work, agreement based co-operation and student works (thesis etc) was seen also important co-operation forms.

The analysis of the data is still unfinished at the moment. The data itself is quite heterogeneous and the sample is also quite small, altogether 370 companies. The target group is also quite dispersed. The results of this paper are only directional. For further studies SMEs innovation capabilities should be analyzed more thoroughly. One possibility is that innovation capabilities are analyzed by Imp3rove analysis tool. The standard activities of universities should also be studied, how successful and productive these activities has been and what has been achieved.

**Analysis of the Factors among Industries**

Competitiveness is most important to health firms, knowledge intensive business services and wholesale and retail firms. Internal co-operation is most important to accommodation and restaurant services, to social service firms, to knowledge intensive business services and to construction firms. Willingness to renew is most important to social service firms, to free time oriented firms, to knowledge intensive business services and to accommodation and restaurant services. Willingness to take risks is most important to free time oriented firms and it is most constraining to construction firms. The renewal speed is most important to construction firms. The location in relation to customers, to business partners and to business services is most important to social service firms. The reach, the structure and the viability of the distribution network is most important to wholesale and retail firms. Co-operation with other firms is most important to industrial firms and to free time oriented firms. Co-operation with customers is most important to free time oriented firms and social service firms. The availability of premises, machinery and tools are most important to knowledge intensive business services. The know-how in the firm is most important to knowledge intensive business services. The availability of market information is most important to free time oriented firms. The availability of research and development information is most important to free time oriented firms and knowledge intensive business services. The price competition is most important to accommodation and restaurant services, to wholesale and retail firms and to social service firms. A competing innovation is most important to free time oriented firms. The market niche is most important to wholesale and retail firms, to knowledge intensive business services and to industrial firms. The willingness to utilize the know-how of the staff is most important to knowledge intensive business services. An idea from the customer to the entrepreneur is most important to industrial firms and to accommodation and restaurant services. An idea from the customer to other member of the staff is most important to accommodation and restaurant services, to wholesale and retail firms and to social service firms. An idea from other firms in the industry is most important to wholesale and retail firms, to accommodation and restaurant services firms, to social services firms and to free time oriented firms. Own staff is most important to an agriculture industry, to wholesale and retail firms and to social services firms. Participation in projects has been most important to industrial firms and to social services. The professional literature and other publications are most important to an agriculture dominated industry firms, to accommodation and restaurant services, to knowledge intensive business services and to transport firms. The participation in projects is most important to social services firms. The encouragement of the staff to study individually is most important to social services firms and to knowledge intensive business services. Information obtained from customers is most important to free time oriented firms. The social services firms experienced more than other firms that their markets experienced growth, while the firms in wholesale and retail industry, accommodation and restaurant firms and transport firms experienced the highest increase of competition. The industrial firms were by far most often contacted to universities. Free time oriented firms, social services firms and industrial firms and an agriculture dominated industry of firms were by far most contacted to polytechnic schools.

The wholesale and retail firms, the social service firms and an agriculture dominated industry firms are most satisfied to co-operation with universities, while the knowledge intensive firms aren't satisfied to them. The social services firms, free time oriented firms and transport firms are most satisfied to polytechnic schools, while the knowledge intensive business services aren't satisfied to them. The social services firms have been by far most satisfied to management consultancies. The most networked industries in terms of entrepreneurial acquaintances were social services and transport firms, of which the last two also had most other than entrepreneurial acquaintances, and industrial firms. The free time oriented firms, social services firms and industrial firms participated most often to EU projects, while the most satisfied were knowledge intensive business services.

The willingness to utilize the know-how of the staff and the market niche have a heightened importance in relation to other factors in starting renewal actions in industrial firms, knowledge intensive business services firms, transport firms and construction firms.

The willingness to utilize the know-how of the staff has been by far the most important factor in relation to other factors in starting the renewal actions in knowledge intensive business services, in accommodation and restaurant services and in social services.

The willingness to utilize the know-how of the staff wasn't among the two most important factors in starting the renewal actions in the free time industry.

The market niche wasn't among the two most important factors in starting the renewal actions in accommodation and restaurant services firms.

The know-how hasn't been among the two most important factors in furthering the renewal actions in accommodation and restaurant services and in social services industry.

The know-how and the co-operation with the customers have a higher importance in relation to other factors in furthering the renewal actions in the wholesale and retail industry, in knowledge intensive business services and in accommodation and restaurant services.

The internal co-operation is the most important factor in furthering the renewal actions in accommodation and restaurant services industry. This is the only industry where this dimension is among the two most important factors and in addition among all industries this wasn't among the most important factors in this dimension. Although the internal co-operation is the third most important factor for the firms on average, it is the third most important factor only in knowledge intensive business services, it is the fourth most important factor in wholesale and retail industry, in transport industry, in social services industry and in construction industry and it isn't among the most important factors in industrial firms and in agriculture dominated industry and in free time firms.

Although the speed of renewal is the fourth most important factor in furthering the renewal actions among the firms, it is the fourth most important factor only in industrial firms and in agriculture dominated industry.

The competence of the firm is among the most important factors in furthering the renewal actions in the wholesale and retail industry, in knowledge intensive business services, in social services and in construction firms, although it isn't among the most important factors among all industries.

The co-operation with other firms is among the most important factors among industrial firms, free time oriented firms, in agriculture dominated industry and wholesale and retail firms, although it isn't among the most important factors among all industries. Among the social services firms it was important, although it wasn't among the most important factors.

The availability of information linked to research and development is among the most important factors among knowledge intensive business services, in agriculture dominated industry and in free time oriented firms, although it isn't among the most important factors among all industries.

The reach, structure and viability of the distribution network is among the most important factors among the accommodation and restaurant service firms, transport firms, construction firms and in agriculture dominated industry.

The availability of market and customer information is far more important to free time oriented firms than to other industries.

The location in relation to customers is far more important to social services firms than to firms in other industries. Also the location in relation to other firms is more important to firms in this industry than to firms in other industries, while it is far less important to construction firms, free time oriented firms and knowledge intensive business services firms. The location in relation to customers is far more important than the location to other firms among knowledge intensive business services, construction firms and social services firms.

The location in relation to business services is a constraining factor in implementing the renewal actions in accommodation and restaurant services, in construction firms and in free time oriented firms. The free time oriented industry was the only industry where the location in relation to customers, to other firms and to business services is constraining factors.

The willingness to renew is among two most important factors in furthering in the renewal actions the social services industry. This is the only industry where this dimension is among the two most important factors.

An idea from the customer to the entrepreneur is by far the most important source of renewal among the industrial firms, accommodation and restaurant services and transport firms.

The own staff is by far the most important source of renewal among the wholesale and retail firms, in social services firms, construction firms and agriculture dominated industry.

An idea from the customer to the entrepreneur isn't among the two most important sources of renewal among construction firms and in agriculture dominated industry and in free time oriented industry.

The own staff isn't among the two most important sources of renewal and this is the only industry where this dimension isn't among the two most important sources of renewal.

The information obtained from the customers is by far the most important means in the development of know-how in industrial firms, wholesale and retail firms, in accommodation and restaurant services, in transport firms, in construction firms, in social services and in a agriculture dominated industry. In knowledge intensive business services firms and in construction firms it wasn't as significantly the most important means.

Although the participation of the staff is the second most important means in developing the know-how, it is the second most important factor only in social services firms and in transport firms. It has been the third most important factor in wholesale and retail firms, in knowledge intensive business services, in accommodation and restaurant services, in construction firms, in agriculture dominated industry and in free time oriented industry and only in the industrial firms it wasn't among the three most important means.

Although the written material linked to the development of the know-how, databases and the Internet is the third most important means in the development of know-how in all firms, it is the third most important means only in industrial firms. It is the second most important means in knowledge intensive business services, in accommodation and restaurant services, in construction firms, in agriculture dominated industry and in free time oriented industry.

Although the participation into training, lectures and seminars and short interval training is the second most important factor in the immediate business development among the firms, it is the second most important factor only in the in the wholesale and retail industry, in knowledge intensive business services and in agriculture dominated industry. The participation into training and lectures and seminars and short training and free co-operation have been by far the most important factors in the immediate business development.

The price competition is more important to accommodation and restaurant services and to social services than to all firms, although the difference isn't significant.

Competing innovation is far more important to free time oriented industry than to other industries.

Participating into projects in starting the renewal actions is far more important to free time oriented firms than to other industries. It has been most important to free time oriented firms, to industrial firms and to agriculture dominated industry. Participating into projects is more important as a means to develop the know-how and in immediate development of the business than in the furthering of the renewal actions or as a source of renewal, although the difference isn't significant. Participating in projects has some significance in starting renewal actions in free time firms and as a means to develop the know-how in social services firms and in the immediate development of the business in free time firms, in social services firms and in accommodation and restaurant services.

Although the conversations with other entrepreneurs are the third most important factor, they are the third most important factor only in industrial firms and wholesale firms and they are the second most important factor in knowledge intensive business services, in transport firms and in construction firms. They are the most important factor in free time oriented firms.

An idea from the customer to other member of the staff is more important to accommodation and restaurant services and to social services and to wholesale and retail firms than to other industries. These are industries where the staff and the customers are in closest interaction with each other.

Although the written material linked to the development of know-how, databases and the Internet are the third most important factor in the development of the know-how, they are the third most important factor only in industrial

firms and they are the second most important factor in knowledge intensive business services, in accommodation and restaurant services, in free time firms and in agriculture dominated industry and they are far more important to them than to other industries.

The encouragement of the staff to study individually is most important to knowledge intensive business services, social services wholesale and retail firms. In industrial firms it isn't important.

Information obtained from other firms is far more important to knowledge intensive business services firms than to other industries.

The recruiting of new staff is most important among agriculture dominated industry and in social services.

Theses have some significance in the immediate development of the know-how among social services firms in wholesale and retail firms, in industrial firms and in accommodation and restaurant services.

The municipal business services are by far most important to top level market innovators. In the market level they are far more important to low innovators than to middle level innovators, but this isn't so to firm level innovators, where the firms don't have as great differences. The industry associations are most important to the market level top innovators and they are also important at the firm level, although the difference isn't so great. The top innovators and low innovators are by far the most in co-operation with them. Top innovators are most in co-operation with universities and the difference is greater in the market level than in the firm level. The market level innovators are by far most in co-operation with polytechnic schools and the difference to other firms is greater than co-operation with universities and the top innovators and low innovators are most in co-operation with them. The firm level top innovators are most in co-operation with vocational institutions and the top innovators and the low innovators are most in co-operation with them. The top innovators are by far most in co-operation with development companies, regional business services and consultancies. The firm level top innovators are by far most in co-operation with other firms.

The contract-based co-operation has some significance among industrial firms.

The main sources of partnership for the firms in the study are municipal business services, industry associations, universities, polytechnic schools, vocational institutions, development companies, Finnvera, municipal business institutions, consultancies and other firms.

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Table 1. The importance of renewal

| | Market level | Firm level |
|---|---|---|
| Insignificant = 1[1] | 41,4 | 37,3 |
| 2 | 24,7 | 18,5 |
| 3 | 20,3 | 21,2 |
| 4 | 9,2 | 13,7 |
| Very important = 5 | 4,4 | 9,2 |
| Total | 100 | 100 |

*Note:* [1] Five-point Likert-scale (1 = Insignificant to 5 = Very important).

Table 2. Importance of co-operation, renewal valuable to firm level

| Co-operation | Insignificant renewal (Contacts by firm) | Very important renewal (Contacts by firm) | P-level[2] |
|---|---|---|---|
| Universities | 1,8 | 2,4 | 0,040 |
| Public institutions | 2,0 | 4,0 | 0,152 |
| Financiers | 1,6 | 1,9 | 0,072 |
| Companies | 7,8 | 10,6 | 0,002** |

*Note:* Statistical significance: Statistically significance, if $p \leq 0{,}001$ = ***; Statistically significance, if $0{,}001 < p \leq 0{,}01$ = **; Statistically significance, if $0{,}01 < p \leq 0{,}05$ = *; Statistically significance, if $0{,}05 < p \leq 0{,}1$.

Table 3. Importance of co-operation, renewal valuable to market level

| Co-operation | Insignificant renewal (Contacts by firm) | Very important renewal (Contacts by firm) | P-level[2] |
|---|---|---|---|
| Universities | 1,7 | 3,3 | 0,030* |
| Public institutions | 1,8 | 6,6 | 0,004** |
| Financiers | 1,4 | 3,2 | 0,013* |
| Companies | 8,7 | 6,7 | 0,102 |

*Note:* Statistical significance: Statistically significance, if $p \leq 0{,}001$ = ***; Statistically significance, if $0{,}001 < p \leq 0{,}01$ = **; Statistically significance, if $0{,}01 < p \leq 0{,}05$ = *; Statistically significance, if $0{,}05 < p \leq 0{,}1$.

Table 4. Factors that further or constrain the innovation activity of the organization among all firms

| Factors | Value |
|---|---|
| Co-operation with the customers and know-how in the firm | 3,88 |
| Willingness to renew | 3,55 |
| Internal co-operation | 3,49 |
| Renewal speed | 3,47 |
| Location to customers | 3,29 |
| Availability of market information | 3,29 |
| Availability of premises, machinery and tools | 3,28 |
| Location to business partners | 3,26 |
| Co-operation with other firms | 3,2 |
| Availability of research and development information | 3,2 |
| Competence of the firm | 3,19 |
| Financing opportunities | 3,11 |
| Reach and structure and viability of distribution network | 3,08 |
| Location to business services | 2,97 |
| Willingness to take risks | 2,88 |
| Availability of competent workforce | 2,74 |

Table 5. Factors in starting the renewal actions

| Factors | Value |
|---|---|
| Willingness to utilize the know-how of the staff | 3,55 |
| Market niche | 3,40 |
| Price competition | 3,06 |
| Competing innovation | 3,01 |
| Participation in projects | 2,10 |
| Technological breakthrough or a new technology | 1,97 |

Table 6. Sources of renewal actions

| Factors | Value |
|---|---|
| Idea from the customer to the entrepreneur | 3,36 |
| Own staff | 3,29 |
| Conversations with entrepreneurs from different industries | 2,98 |
| Professional literature and other publications | 2,72 |
| Idea from other firms in the industry | 2,70 |
| Idea from the customer to other member of the staff | 2,59 |
| Participation to fairs, seminars and theme events | 2,36 |
| Business counseling | 2,24 |
| Participation in projects | 2,19 |
| Collaboration with research and development institutions | 2,11 |
| Participating in associations' events | 2,01 |

Table 7. The means in developing the know-how of the firm

| Factors | Value |
|---|---|
| Information obtained from the customers | 4,00 |
| Participation of the staff to training events | 3,40 |
| Written material, databases and the Internet | 3,3 |
| Encouragement of the staff to study individually | 3,14 |
| Information obtained from other firms | 2,92 |
| Recruitment of new staff | 2,45 |
| Participating in projects | 2,32 |
| Commercial services | 1,97 |

Table 8. Instant business development

| Factors | Value |
|---|---|
| Lectures and seminars and short-interval training | 2,98 |
| Free co-operation | 2,96 |
| Theses | 2,56 |
| Contract-based co-operation | 2,52 |
| Participating in projects arranged by universities | 2,39 |


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Table 9. Factors that further or constrain the renewal actions

| Factors | Value |
|---|---|
| Know-how in the firm | 3,84 |
| Co-operation with customers | 3,69 |
| Co-operation with other firms | 3,54 |
| The speed of renewal | 3,47 |
| Location in relation to business partners | 3,34 |
| Availability of premises, machinery and tools | 3,32 |
| Location in relation to customers | 3,30 |
| The reach, structure and viability of the distribution network | 3,30 |
| Willingness to renew | 3,28 |
| Availability of market information | 3,24 |
| Competence of the firm | 3,2 |
| Internal co-operation | 3,2 |
| Location in relation to business services | 3,19 |
| Availability of competent workforce | 3,19 |
| Availability of research and development information | 3,00 |
| Financing opportunities | 3,00 |
| Willingness to take risks | 2,79 |

Table 10. Factors in starting the renewal actions

| Factors | Value |
|---|---|
| Willingness to utilize the organization know-how of the staff | 3,68 |
| Market niche | 3,68 |
| Price competition | 3,03 |
| Competing innovation | 3,00 |
| Participation in projects | 2,47 |
| Technological breakthrough or a new technology | 1,97 |

Table 11. Sources of renewal actions

| Factors | Value |
|---|---|
| Idea from the customer to the entrepreneur | 3,87 |
| The staff | 3,38 |
| Conversations with entrepreneurs from other industries | 2,97 |
| An idea from other firms in the industry | 2,62 |
| Participation to fairs, seminars and theme events | 2,59 |
| Idea from the customer to other member of the staff | 2,58 |
| Participation in projects | 2,56 |
| Professional literature and other publications | 2,55 |
| Business counseling | 2,48 |
| Co-operation with educational institutions | 2,41 |
| Participating in associations' events | 1,97 |

Table 12. Means in developing the know-how in the firm

| Factors | Value |
|---|---|
| Information obtained from customers | 4,04 |
| Information obtained from other firms | 3,11 |
| Written material, databases and the Internet | 3,00 |
| Participation of the staff to training events | 2,95 |
| Recruitment of new staff | 2,78 |
| Encouraging the staff to study individually | 2,68 |
| Participating into projects | 2,46 |
| Commercial services | 2,06 |

Table 13. Instant business development

| Factors | Value |
|---|---|
| Free co-operation | 3,17 |
| Theses | 2,82 |
| Contract-based co-operation | 2,72 |
| Participation into projects | 2,5 |
| Lectures, seminars and short-interval training | 2,5 |


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# Partnerships between SMEs and MNEs on Foreign Industrial Markets: A Strategy to Reduce the Liability of Foreignness

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**Abstract**

By using the example of piggyback arrangements, we focus on the strategic issues of partnerships between exporting innovative SMEs and MNEs on foreign industrial markets. This research looks at two types of managerial contributions. On the one hand, it highlights co-marketing practices for an accelerated penetration and learning of a new foreign market for the SME. On the other hand, it stresses the importance of developing a sustainable management of partnership resources for the MNE in order to rapidly cover new market needs thanks to complementary products from small innovative firms.

**Keywords:** SME-MNE partnership, Liability of foreignness, Alliance portfolio, Firm-specific advantage, Advantage of multinationality

## 1. Introduction

The purpose of this paper is to insist on the role of alliance portfolios in the reduction of the liability of foreignness that MNEs may go through during their development into a new foreign market, owing to local discriminations or barriers which limit their access to information (Hymer, 1976). Such a liability can be overcome by the development of sustainable competitive advantages which are linked to the possession of unique assets (Zaheer, 1995). In order to illustrate our view, we will consider the case of piggyback arrangements, which are international distribution agreements concluded between some exporting innovative SMEs and the business subsidiaries of large industrial groups (Bueno Merino, 2003). Our study, carried out on the French market, is based on the conduction of exploratory interviews enabling a deep analysis of the specificities of such partnerships.

The piggyback arrangement facilitates access to a part of the international competitive intelligence of a large industrial group, *i.e.* to market opportunities detected by its local subsidiaries. Such a real-life case study allows us to better understand exactly what intelligence units do and to develop "a refreshing and useful approach" of how intelligence is practised rather than how it ought to be practised (Wright & Calof, 2006). The piggyback arrangement also presents strategic advantages for the large industrial group. It favours the execution of a solution selling to a joint local clientele which will buy a complete offer of intermediate products, simultaneously made up of the products of the MNE and the products of the SME. This combination of complementary products within a single industrial offer leads to a wider satisfaction of the requirements of the local clientele than through the sales of separate products. The MNE thus increases the perceived value of its industrial offer and therefore its business negotiation capacity (Bueno Merino, 2003).

According to Huster (2005), competitive intelligence can be regarded as "the ability to fully understand, analyse, and assess the internal and external environment associated with customers, competitors, markets, industry and use the acquired knowledge for long and short term strategic planning". However, as regards foreign industrial markets, this passage from information to action, *i.e.* the capacity of the MNE to be the first to meet with the new requirements

identified by its local subsidiary, is very often conditioned by the immediate access to complementary external resources, particularly when this involves solution selling on a foreign market.

Competitive intelligence, may we recall, has a praxeologic vocation: it is necessarily directed towards action. Calof and Skinner (1999) have specially insisted on this praxeologic vocation: "Competitive Intelligence is actionable recommendations arising from a systematic process involving planning, gathering, analysing and disseminating information on the external environment for opportunities, or developments that have the potential to affect a company's or country's competitive situation". This capacity to go from the knowledge of a market opportunity to its fulfilment will depend on the capacity of the MNE to quickly find innovative partners likely to complete its industrial offer. Putting in place of a sustainable management of partnership resources improves under these conditions the actionable character of the competitive intelligence generated by the large industrial group.

This article will be organised in four parts. First of all, we will present the main concepts retained within the scope of this research (part 2) as well as the methodology of investigation (part 3). Then, we will submit for analysis and discussion the piggyback arrangement which is a specific form of symbiotic marketing (part 4). We will initially emphasise the strategic advantages of the piggyback arrangement for the MNE in the reduction of the liability of foreignness. We will subsequently study the role of trust in the efficacy and the viability of the piggyback arrangement. Last but not least, by way of conclusion (part 5), we will simultaneously consider theoretical and managerial contributions and the limitations of our work.

## 2. Conceptual Aspects

### *2.1 Alliance Portfolios: A Strategy to Overcome the Liability of Foreignness*

According to Hymer (1976), MNEs may experience difficulties in the implementation of their internationalization strategy owing to barriers which limit their access to information (linguistic, cultural, sectorial, etc.) or discriminations by government, consumers and suppliers in the host country. Some studies have revealed the existence of a "liability of foreignness" at the beginning of their internationalization process via foreign direct investment (Zaheer, 1995; Zaheer & Mosakowski, 1997; Miller & Parkhe, 2002; Mezias, 2002; Johanson & Vahlne, 2009). SMEs also know this problem (Lu & Beamish, 2001, 2004, 2006; Majocchi & Zucchella, 2003). For Zaheer and Mosakowski (1997), the liability of foreignness arises mainly from the foreign firm not being sufficiently embedded in the information networks in the country of location. More precisely, the liability of foreignness can be defined as the costs of doing business abroad that result in a competitive disadvantage for a subunit. That is to say, all additional costs a firm operating in a market overseas incurs that a local firm would not incur (Zaheer, 1995). The degree of liability of foreignness influences the market entry strategy (Chen *et al.*, 2006).

This disadvantage can be overcome by the development of compensation mechanisms. According to Zaheer (1995), to reduce the liability of foreignness and compete successfully against local firms, MNEs need to provide their overseas subunits with some specific-firm advantages, often in the form of organizational or managerial capabilities. The liability of foreignness can be offset by the possession of unique assets which will constitute some superiors sources of sustainable competitive advantages over local firms. For Nachum (2003), firm-specific advantages arise from the possession of certain intangible assets or capabilities such as patents, trademarks, and management skills. These are the mechanisms that foreign firms use to compensate for the lack of access to local resources and for the additional costs associated with doing business abroad.

Nachum also insists on the advantages of multinationality. These advantages are linked on the ability to coordinate multiple and geographically dispersed value-added activities, to access resources in different locations, to obtain information from multiple environments, to spread risk, and to benefit from economies of scale and scope arising from large-scale production. The advantages of multinationality depend notably on the intensity of the internal linkages between the MNE and its subsidiaries: "The access of affiliates to the stock of information and commercial knowledge possessed by the network of the organization of which they are part provides them with considerable advantage over indigenous firms, who are deprived of such sources of information." (p.1206).

Seeking recourse to alliance portfolios may be an efficient way to create value (Lavie, 2008) and to overcome the liability of foreignness by the development of compensation mechanisms. The ability to manage a portfolio of external resources can be assimilated to an intangible capability at the origin of a competitive advantage. For Gulati (1999), a firm's alliance network can be thought of as an inimitable and non-substitutable resource as well as a means to access unique capabilities. The stability of the interorganizational cooperation is therefore principally linked to the motivation of each partner and the climate of mutual trust, influenced in particular by relational proximity, in other words by the frequency of contacts between the partners. Owing to its tacit and inimitable nature, trust, according to Barney and Hansen (1995), may constitute a relational asset at the origin of a sustainable competitive advantage. The sustainability of the competitive advantage thus obtained implies that there is an active management of this relational

asset. This active management will simultaneously concern two aspects: the quality of the relation and the complementarity of the skills. The existence of mutual interests does not suffice for explaining the stability of the cooperation over time. It is also influenced by the quality of inter-personal relations.

### *2.2 Characteristics of the Piggyback Arrangement: A Form of Symbiotic Marketing*

Symbiotic marketing (Adler, 1966; Varadaradjan & Rajaratnam, 1986) points out the interorganizational collaborations earmarked for optimising the downstream links of the value chain: marketing, sales and client services. This specific form of interorganizational cooperation has been the subject of various works: one thus speaks indifferently of "co-marketing alliances" (Bucklin & Sengupta, 1993), of "selling alliances" (Brock Smith, 1997; Brock Smith & Barclay, 1997), or even of "lateral partnerships" (Morgan & Hunt, 1994). The piggyback arrangement is a form of symbiotic marketing owing to the absence of the input/output link between the partners (Bueno Merino, 2003). As opposed to the relations between a sub-contractor and a contractor (*i.e.* wherein the semi-finished product of one is integrated in the production of the other), both partners, the exporting SME and the local subsidiary of the MNE, do not maintain any vertical relations. This involves an agency relationship and not a vertical relationship characterised by a transfer of property rights from the supplier to the client. Moreover, the piggyback arrangement is concluded between non-competitor companies. The products earmarked for the same client segment should be complementary during the partnership relationship in order to avoid any risk of cannibalization of the offer.

Piggyback arrangements are formalised by commercial agent contracts signed with one or several distribution subsidiaries and characterised by mutual exclusivity. They generally come about in response to new requirements expressed by the foreign clientele and identified by a distribution subsidiary of the MNE. The local subsidiary explores the market on behalf and for the account of the exporting SME, negotiates with the foreign client and takes care of order taking. Thanks to the flow of information originating from the representation activity of the local subsidiary, this partial outsourcing of the distribution activity facilitates its quick penetration into the foreign market. The SME does not outsource the entirety of the activities constituting the distribution link. As per the terms of the contract, it should take charge of post-contractual operations, *i.e.* the operations related to the execution of the sales contracts signed with foreign clients. The exporting SME takes charge of billing, administrative and custom formalities, delivery of the products, and technical assistance of the foreign client. The SME therefore only seeks recourse to the "transactional channel" (Bowersox *et al.*, 1980) from its partner, made up solely of information flows (information from the SME on the foreign demand, information from foreign clients on the SME's offer, contract negotiations, etc.), as opposed to the "logistic channel", made up on its part by physical flows generated by the operations pertaining to routing and processing of products (transport, storage, packaging, etc.).

Contrary to the small independent business intermediary, the MNE can vouch for a wide geographical distribution of the SME's product by multiplying the number of commercial agent contracts signed with the SME. Within the scope of marketing an innovative niche product, this wide-scale distribution is all the more justifiable. The piggyback arrangement allows the exporting SME to save on transaction costs related to the search of an independent local intermediary competent in technical matters. For example, an export manager noted: "*For a niche product, it is necessary to refer to a real expert. We were in need of a competent relay. […] For a small enterprise, Germany is a distant market.*" Seeking recourse to this partnership facilitates rapid introduction of the SME's products on the foreign market and allows the lifting of three kinds of barriers at entry: linguistic, cultural and sectorial. Consequently, the transaction costs linked to the search for new foreign industrial clients (prospection costs and negotiation expenses) are also minimised. In this fashion, the exporting SME saves on expenses related to travelling, translation, study of the foreign legal system, drawing up of contracts, etc. The piggyback arrangement also entails very few specific investments. The partners benefit from the already existing assets: the local sales force of the industrial group as well as the technology of the SME. The joint objective is to make a new product available as quickly as possible to the foreign clientele. Unrecoverable costs are in fact restricted to expenses relating to relational proximity generating trust.

## 3. Data and Methodology

In order to collect our data, we conducted several case studies which allowed an in-depth exploration of an inter-organizational practice which is rare and which has hardly been studied in the past. Field research, which is defined as an in-depth study of real-world phenomena through direct contact with the organizational participants, provides more than mere descriptions of practice. It is "especially effective for building theory, particularly through early, exploratory investigations where the phenomena are not well understood and where the relevant variables and relationships might not even be identified or conceived of yet" (Merchant & Van der Stede, 2006). It yields new ways of classifying phenomena, richer explanations of why or how certain phenomena occur.

Two MNEs and four French exporting SMEs of the same nationality participated in our study. These enterprises belong either to the field of chemical industries or metallurgical industries. The foreign markets targeted by the piggyback arrangements under study are located in Europe (Germany, Poland, Hungary, etc.) or in farther removed economic zones (China, Japan, Russia, etc.). In order to evaluate the pertinence of our primary data, we have triangulated them with our internal (analysis of the contents of a standard piggyback arrangement contract) and external (export-related trade press) secondary data. Furthermore, we proceeded with a repetition of a part of our exploratory interviews and a second reading of the cases by the respondents. In the majority of the cases, we conducted several semi-direct interviews with each interviewee: structured guides were drawn up for taking up a series of themes that were defined beforehand.

Considering the rarity of previous works, our research study is above all exploratory in nature. We have favoured the internal validity of our results (pertinence and exactness) over their external validity (level of generalization). In order to justify the internal validity of our results, we must emphasise the characteristics of our sample:

- The piggyback arrangement is practised regularly in France by only two large industrial groups: *Rhodia* (300 arrangements; 70 business subsidiaries abroad; 80 countries covered) and *Pechiney/Alcan* (250 arrangements; 40 business subsidiaries abroad; 65 countries covered). Both these groups accepted to respond to our various interrogations. Created on 1st January 1998 and stemming from the bringing together of chemistry, fibre and polymer-related activities of *Rhône-Poulenc*, the *Rhodia* group is one of the world leaders of specialised chemistry. It became emancipated in October 1999 after the creation of *Aventis* (*Sanofi-Aventis* in 2005) whose activity is devoted to the life sciences (pharmacy, animal and plant health). The *Pechiney* group henceforth belongs to the Canadian group *Alcan* ever since December 2003.
- We simultaneously questioned MNEs as well as innovative SMEs: this composition of our sample paved the way for a cross-sectional analysis of viewpoints. The cross-sectional analysis accelerated the process of "theoretical saturation" (Glaser & Strauss, 1967). The impression that the last unit of observations was not really getting us any new elements came up quite fast. The cross-sectional analysis of viewpoints enabled us to respond to a great number of interrogations that were in our mind.

As we mentioned above, only two MNEs have developed a piggyback arrangement portfolio in France and created an ad hoc structure to manage them. The piggybacking strategy is also practiced by a small number of French exporting SMEs: only a few hundred out of 88000 exporting companies with less than 250 employees in 2008 (Note 1). Indeed, this strategy is dedicated primarily to SMEs which have designed an innovative niche product. Consequently, the piggybacking strategy is characterized by a very low frequency of observation. Moreover, the practice is not really mediatized and the piggyback arrangement portfolio composition is kept confidential since MNEs need to protect "the inimitability of their alliance network" (Gulati, 1999). For all these reasons, it remains difficult to use statistical techniques as a research method.

## 4. Empirical Findings and Discussion

### *4.1 Managing a Portfolio of External Resources: A Firm-specific Advantage for the MNE*

Competitive intelligence facilitates the detection of new opportunities in foreign markets. Going from information to action is very often conditioned by access to external complementary resources. This is particularly so in industrial circles where it involves solution selling to local clients. Seeking recourse to already existing innovative products allows reduction of the response time of the new requirements detected on foreign markets. The capacity of the MNE to be the first to meet with these new requirements will depend on its capacity to rapidly find innovative partners who are likely to complete its industrial offer. The canvassing of potential partners takes some time. The existence of a slack of partnership resources at the disposal of the large group then assumes its full importance. This surplus of resources is linked to the ability of the MNE to coordinate on an international scale some partnership monitoring practices. By facilitating access to external complementary resources, partnership monitoring improves under these conditions the actionable character of the competitive intelligence generated by the MNE. According to our interviewees, taking part in specialized fairs (sectorial or export exhibitions) is an efficient way to identify some potential partners.

The piggyback arrangement is an inter-organizational practice set in place in order to favor the execution of a solution selling on a foreign market. The solution selling denotes the joint sale of products manufactured by various companies. This makes it possible to meet with the client requirements with a much wider scope than through the sale of separate products. The respective suppliers temporarily join forces with one another in order to meet with the requirements of the same clientele (Eades, 2004; Bosworth, 1995). The business synergy originating from the temporary association of two independent activities (earmarked however for the same client segment) permits value creation for each supplier. This solution selling, by allowing for a wider satisfaction of the foreign client through the combination of

complementary products, facilitates the implementation of a consumer-oriented strategy. The piggyback arrangement enables MNE to get quickly adjusted to technological changes by allowing the revitalization of its industrial offer through the integration of innovative products designed by outside economic entities. It also makes it possible to achieve economies of scale through increase in the number of products marketed by the local subsidiaries of the major group: "*The profitability of the subsidiaries is improved by the reduction in fixed unitary costs* (Rhodia spokesperson)".

The proposal of an overall offer allows to build customer loyalty from among the existing clientele or else to win over new clients who will simultaneously buy the SME's products and the products of the MNE. By proposing a solution to its foreign industrial client, *i.e.* a complete offer of intermediate products, the MNE improves the perceived value of its offer and therefore its business negotiation capacity. For example, Rhodia spokesperson declared: "*The piggyback comes within the scope of the group's business strategy. The idea is to improve the marketing impact by offering a solution to the clientele that is to say a complete range of products, which tends to do away with price wars*." This value creation enables the MNE to limit the risk of discrimination by consumers (Hymer, 1976) at the beginning of the internationalization process. It also justifies the choice of the piggyback arrangement, by the SME, as a way to enter a new international market. According to Pan (2004), consumer-related factors shall be the most important criteria in selecting partner prior to adopt other factors into consideration such as partner-related factors and task-related factors: "International strategic alliance, as part of the firm's strategic decision, shall be formed and managed to serve for the ultimate mission, customer satisfaction."

*4.2 Managing an Electronic Distribution Platform: An Advantage of Multinationality for the MNE*

At the end of 2003, just before its takeover by the Canadian company *Alcan*, the *Pechiney* group decided to interconnect the entirety of its export subsidiaries in order to optimise the marketing potential of new products, the group's products, and the products designed and manufactured by innovative complementary SMEs. Our interviewee noted: "*The creation of an electronic platform will favor the synergy between agencies*. *Our strength lies in our physical presence worldwide.*" The group is also gradually putting in place on-line piggyback arrangement-related actions which consist in multiplying computerised exchanges between the local subsidiaries located abroad, between subsidiaries and mandator companies, and between subsidiaries and industrial clients. This new electronic organization makes it possible to improve the efficiency of the competitive intelligence system set in place for managing the piggyback arrangement portfolio of the large group. It meets with several objectives:

- *Electronic listing of the products marketed by the group.*
- *Distant learning of local agencies*: educating the local sales force about the technical characteristics of the SME's product can henceforth be done on-line through electronic transmission of fact sheets.
- *Making available of sales visit reports on the site*: local subsidiaries can henceforth supply a business development statement online.
- *The creation of a forum*: this forum aims at favoring dialogue between local agencies at the time of the assesed marketing potential of a new product.

The interconnection of the 40 export subsidiaries of the MNE improves the flow of information and therefore the identification of new opportunities in foreign markets: "*This also involves tapping a market competence. The technology watch of the group, through its local relays, permits identification of new product-market pairings which do not necessarily belong to the 40 business units of the enterprise. With this hypothesis, we scout for the appropriate product competence and we take charge of its marketing in various ways: agency contract, trade, joint-venture, etc.*" The MNE thus mobilizes the production of know-how of an outside entity. "*This type of project management is facilitated by our electronic organization.*" It rests on the effectiveness of the international information network of the industrial group: "*We mobilise our network of experts specialised per sub-market and tasked with detecting new business opportunities.*" The creation of an electronic platform enables the MNE to intensify the internal linkages and to compensate the liability of foreignness via the strengthening of the advantages of multinationality.

*4.3 The Role of Trust and Communication in the Piggyback Arrangement Management*

Owing to the absence of the input/output link between the partners, the stability of the piggyback arrangement is principally dependent on the existence of a climate of mutual trust. The works carried out in the matter of symbiotic marketing particularly insist upon the following specificity: the absence of the input/output link renders the symbiotic cooperation more fragile, more inter-personal and more voluntary, as compared to the vertical cooperation between the client and the supplier (Brock Smith, 1997). The stability of the symbiotic cooperation is therefore principally linked to the motivation of each partner and the climate of mutual trust, influenced in particular by the relational proximity, in other words by the frequency of contacts between the exporting SME and its representative agent. This

relationship between mutual trust and stability of the partnership over time is also applicable to our subject of study. However, it would seem that the voluntarist behaviour of the SME has a specific effect on the development of cooperation and the maximization of the transfer of information from the local subsidiary to the SME. In fact, considering the existence of a plurality of principals represented by the local subsidiary of the MNE, the SME should strive to attract the attention of its business intermediary. Its voluntarist behaviour constitutes a distinct advantage and has an influence on the effectiveness of the business representation, in other words on the time devoted by the local subsidiary specifically to the marketing of the products of the SME.

- "*Inter-personal relations are a guarantee of the success of the agreement. […] The SME should display a voluntary behaviour and therefore operate a follow-up of the work of the local subsidiary* (spokesperson Rhodia)."
- "*The SME should take the initiative for having exchanges. When we did not have any news after a certain amount of time, we used to contact them once again* (spokesperson in a SME)."

The piggyback arrangement also acts as a source of learning for the exporting SME. Access to information is a strategic resource in the internationalization process, and a source of learning for the exporter (De Pelsmacker *et al.*, 2005). This resource will condition not only the foreign market penetration but also the growth prospects of the export company on this new market, thank to the unearthing of the business opportunities. Interorganizational cooperation becomes a strategy geared towards outsourced production of information on the foreign market (Slater & Narver, 2000), which can be supplemented with information generated by official bodies (Toften & Rustad, 2005; Diamantopoulos *et al*., 1993). Cooperation with a native partner in fact facilitates an accelerated learning of the local routines (Barkema *et al*., 1996; Madhok, 1997) which by their very definition constitute an intangible knowledge that is difficult to acquire without the intervention of an on-site relay. The interaction between the exporting SME and the subsidiary of the MNE permits the identification of the foreign clientele and the main competitors, an estimation of growth prospects, and the initiative of the SME in matters of local business customs. More than as an efficient organizational form, interorganizational cooperation can be likened to a strategic resource (Madhok & Tallman, 1998). Madhok (1997) explains seeking recourse to interorganizational cooperation by the failure of the hierarchy. It is not the probability of an opportunistic behaviour that justifies the selection of such a mode of governance but an insufficiency of routines concerning the local customs. The author likens the local know-how to an idiosyncratic capacity. The exporting firm will try, through the interorganizational cooperation, to acquire new knowledge and subsequently incorporate it in routines in consonance with the local context.

Communication contributes in a major way to the building of trust (Mohr & Nevin, 1990; Morgan & Hunt, 1994) and namely within the scope of cooperation between the exporter and the business intermediary (Karunaratna & Johnson, 1997). It may be defined as the sharing, both formal and informal, of significant and timely information (Anderson & Narus, 1990), which may be at the origin of a new competitive advantage. Communication constitutes a non-redeployable investment in terms of time and personnel (Ross, Anderson & Weitz, 1997) and allows collection of data on the skills, the manners of proceeding, the objectives and the motivation of the partner. For Das and Teng (1998), a mutual, prompt and open communication favours the development of relational trust considering the interaction process that it generates and based on which the contracting parties institute shared values and standards. The latter will allow the contracting party to better comprehend its partner's objectives, and in other words the motives of its conduct. Communication is a process of adjustment through which individuals jointly fashion their relationship (Van de Ven & Walker, 1984). In the piggyback arrangement, the exchange of information is facilitated by the existence of a sectorial culture that is common to the SME and the local subsidiary. The inter-relationships in terms of business (technical expertise and client expertise) in fact favour the emergence of shared significations (Van de Ven & Walker, 1984).

Furthermore, communication tends to even out any possible conflicts between partners and facilitates the collection of data on the skills and motivations of the co-contracting party. In other words, the exchange of information enables the update of expectations from the partner. Nevertheless, as per Anderson and Weitz (1989), the frequency of inter-personal relations tends to decrease with the development of mutual trust. The strengthening of trust in the course of time ends up with putting in place of an "efficient communication". This implies that once trust has been established, the intensity of communication diminishes in the course of time. The contracting parties then content themselves with taking stock of the situation from time to time: "*[…] older relationships involve less communication rather than more, […] suggesting the parties have developed such a good understanding of each other that they can make their points more efficiently (i.e. with a lower level of communication).*" Intensive at the beginning of the relationship, communication becomes steady with the strengthening of mutual trust. This relational characteristic can also be observed in the case of the piggyback arrangement: "*Trust contributes to the success of the agreement, this is highly important. We meet together and take stock. […] We discuss, we agree with each other on certain points and then we*

*just let it get on with itself. It is to do with feeling* (spokesperson in a SME)." Trust and communication therefore maintain a mutual relationship. Communication brings about trust which, on its part, influences communication.

## 5. Conclusion, Theoretical and Managerial Contributions and Research Limitations

This research devoted to the link between alliance portfolio of the MNE and reduction of the liability of foreignness, through the example of the piggyback arrangements, has made it possible to generate several results:

- 1/ The liability of foreignness can be offset thanks to the development of two types of sustainable competitive advantages for the MNE: a firm-specific advantage and an advantage of multinationality. In the case of piggyback arrangements, the ability to constitute and to manage a portfolio of external resources generates a firm-specific advantage. The constitution and maintenance of a slack of partnership resources facilitates the passage from information to action, *i.e.* the capacity to seize market opportunities. Moreover, the competitive intelligence of the MNE is enhanced by the virtualization of its international distribution system, owing to the electronic inter-connection of all the subsidiaries established abroad. The creation of this electronic distribution platform, by intensifying the internal linkages, strengthens the advantages which are linked to multinationality.
- 2/ The viability and the efficacy of the piggyback arrangement depend on the intensity of the interaction between the SME and the local subsidiary and therefore on the establishment of a climate of mutual trust between partners. The voluntarist behaviour of the SME has a very specific effect on the maximization of the information transfer brought about by the piggyback arrangement and on its viability.

The main theoretical contribution of this research is the study of a particular form of symbiotic marketing and its issues in terms of sustainable competitive advantages on foreign markets. This specific form of interorganizational cooperation has been the subject of various works: one thus speaks indifferently of "co-marketing alliances" (Bucklin & Sengupta, 1993), of "selling alliances" (Brock Smith, 1997; Brock Smith & Barclay, 1997), or even of "lateral partnerships" (Morgan & Hunt, 1994). Symbiotic marketing is used to optimize the downstream links of the value chain: marketing, sales and client services. The aim of this paper is to focus on the strategic issues of symbiotic partnerships between exporting innovative SMEs and MNEs on foreign industrial markets. The study of the nature of competitive advantages generated by such partnerships is essential. According to the literature dedicated to the liability of foreignness, MNEs need to develop some compensation mechanisms to overcome this liability (Zaheer, 1995). In other terms, MNEs need to provide their subunits with some sustainable competitive advantages over local firms which may be some "firm-specific advantages" or some "advantages of multinationality" (Nachum, 2003). Therefore, this literature facilitates the understanding of the nature of competitive advantages which may be developed on a foreign market to compete successfully against local firms. It is particularly relevant for our analysis of competitive advantages generated by a piggyback arrangement portfolio since this portfolio of external complementary resources is used to cover new market needs on foreign markets. Note that the liability of foreignness is apprehended dynamically in this research. Indeed, our aim is to understand how the liability of foreignness of the MNE can be offset in a sustainable way on a foreign market. We focus on the sustainability of competitive advantages generated by the existence for the MNE of a portfolio of external complementary resources. Such a portfolio is based on the development of partnerships concluded with small innovative partners. This qualitative research allowed the construction of two research propositions dedicated to the strategic issues for the MNE of developing a piggyback arrangement portfolio:

- *P1: Piggyback arrangement portfolio generates a firm-specific advantage for the MNE over local firms.*
- *P2: Piggyback arrangement portfolio generates an advantage of multinationality for the MNE over local firms.*

This research is also characterised by two categories of managerial contributions: contributions directed towards managers of SMEs and contributions directed towards managers of MNEs. It in fact allows to raise awareness among the managers of SMEs about co-marketing practices and more specifically as regards the stakes involved in piggyback arrangements in an accelerated learning of foreign markets. It also allows to raise awareness among the managers of MNEs about:

- the strategic stakes of alliance portfolios in the development of competitive advantages on foreign markets;
- the importance of putting in place of a sustainable management of partnership resources, a condition for the passage from information to action within the context of solution selling on foreign markets.

The small number of enterprises sought out within the scope of this study constitutes the main limitation of this research. Given the small number of French export SMEs concerned by the practice of the piggyback arrangement, this weak point can be minimised only through an endeavour aimed at analytical generalization (Yin, 1990), *i.e.* by an increase in the number of case studies dedicated to this practice. Furthermore, our research study, conducted solely on French territory, does not allow us to give an account of a possible utilization of piggyback arrangements in other

countries. Are French industrialists the only ones to resort to this type of symbiotic marketing? What is the situation in the rest of Europe and on extra-European markets?

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**Notes**

Note 1. C*f* The OSEO annual report on the development of French SMEs: ttp://www.oseo.fr/notre_mission/publications/etudes_et_rapports/generalists

# Assessing Embedded Agency of Entrepreneurs in Context of Internationalization and Innovation: An Exploratory Research

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**Abstract**

"*Tradition is a continuous process of innovation*". This sentence is a leitmotiv for Kotaro Nishibori, one of the last Japanese entrepreneurs in the *wagasa* sector (Japanese traditional umbrellas). Based on the symbolic path of this entrepreneur, this exploratory research investigates embedded dynamics in which the entrepreneur involves himself and his firm, and which conduct a simultaneous two-sided development of its traditional workshop to a global firm acting by/on a continuous innovation process. Based on a neo-institutional framework and literature on entrepreneurial bricolage, we reveal few insights regarding entrepreneur's embedded agency. As the entrepreneur involves himself in social networks, he gets access to resources, which reveal his proactive competencies and in return extend his network. Globalization process based on continuous innovation of Small and Medium-sized Enterprises (SME) can be viewed as the result of strategic trial and error process, in which the entrepreneur plays a critical role.

**Keywords**: Globalization, Innovation, SME, Agency, Entrepreneurial bricolage

## 1. Globalization and Innovation in Context of SMEs

Many researchers pay attention to the value of innovation in internationalization strategies of SMEs (Dana, 2004; McDougall & Oviatt, 2000; Coviello & McAuley, 1999). On one hand, some of them focus on innovation as a trigger in globalization process. In order to make quick returns on huge investments, SMEs engage themselves in global competition. On the other hand, the same considerations are observed in context of "born global" organizations (Rialp et al., 2005; Knight & Cavusgil, 2004; Sharma & Blomstermo, 2003). The adoption of a multi-market strategy from the beginning is strongly motivated to balance investments on research and development underlying products or technologies innovations. However, few research projects follow in return the impact of globalization on innovation process of SMEs. Is there a virtuous dynamic or a vicious circle regarding innovation as the SME goes global? What is the implication of the entrepreneur in such developments? Researchers from the recent School of '*International Entrepreneurship*' have some difficulties to overcome with the '*Uppsala Model*' (Johanson & Vahlne, 2009). Their research frameworks are based on a sequential process of globalization with incremental learning (Keupp & Gassmann, 2009; McDougall & Oviatt, 2000). Even empirical studies remain anchored to SMEs with quick and forward globalization developments without any consideration to the central position of the entrepreneur (owner) in both globalization and innovation decision making process (Bacq & Coeurderoy, 2010).

### *1.1 Decision-making Process in Context of SME*

In context of SME, the decision-making process is intrinsically linked to the owner – the entrepreneur as the only decision-maker – and its perception of how overseas or innovative opportunities may impact present and future activities. In such context, involvement in growing strategies – globalization and innovation – is conducted under consideration of scarce resources. Both globalization and innovation are expensive, time consuming and significant

drains on those scarce resources. As many researchers pointed it out, the relative importance and role of decision-makers within growth strategies processes depends on theoretical backgrounds and frameworks: network relationships approaches and innovation-related stage theory support the view that individual decision-makers play a pivotal role rather than the scale internationalization theory relegates the importance of decision-makers in favor of an economic, transactional based rationale, although none of those considerations have not been yet adequately tested (Collinson & Houlden, 2005). Shared by those theoretical backgrounds, knowledge accumulation and feedback seem to play an important role in decision-making process. But as some researchers mentioned that for the internationalization process, experiential knowledge is more relevant than objective knowledge (Johanson & Vahlne, 1977, 1990). Accordingly, even innovation process or international strategies reveal trial-and-error strategic path for entrepreneurs. And in this vein, it supports McGaughey, Welch and Welch conclusion (1997: 176): "the experience and personal characteristics of small firm owners have been shown to have significant impact on firm performance". Based on a qualitative and quantitative study of 30 SMEs in UK, Collinson & Houlden (2005) support that idea and demonstrate that "international experience and network relationships are found to strongly influence managerial cognition and thereby internationalization decision-making. The learning process appears to be unstructured and opportunistic." (Collinson & Houlden, 2005: 413).

### *1.2 Embedded Agency and Entrepreneurial Bricolage*

The network perspective of decision-making in context of SME supports the idea that opportunities (both internationalization and innovation) are produced through a social-construction process and cannot exist under consideration of the individuality of the entrepreneur (Shackle, 1979; Baker & Nelson, 2005). To assess this process, which gives life to opportunities, two streams of literature seem relevant. Neo-institutional literature tries to overcome the paradox of embedded agency (Battilana & D'Aunno, 2009; Greenwood & Sudaby, 2006; Dorado, 2005; Seo & Creed, 2002; Beckert, 1999; Holm, 1995). To do so, researchers introduces a theory of institutional entrepreneurs, which confer to specific actor in an institutional field abilities to overcome institutional rules and gain access to a more confortable position. Central to this theory, researchers mobilize the concept of embedded agency. The power of action of such institutional entrepreneurs and their transformational capabilities depends on their social networks and assets they are able / decide to leverage. The impact of their embedded agency depends on their capacities to make sense creatively and voluntarily of new combinations of resources (Dorado, 2005). Accordingly, three processes underlie entrepreneurs' embedded-agency: resources accumulation; discursive strategies to involve partners to support changes; various strategies and maneuvers to maintain partners' involvement (Delemarle, 2007).

Even if the empowerment of an embedded agency capability is well depicted by researchers, less attention is paid to emerging processes of such embedded agency. To stress on the initial point of development of awareness for decision-maker of its embedded agency, we decide to refer to a second set of literature dealing with '*entrepreneurial bricolage*' (Baker & Nelson, 2005; Garud & Karnoe, 2003). According to this stream of literature, in context of scarce resources, entrepreneurial bricolage processes are at work when entrepreneurs render unique services (create something from nothing) by recombining elements at hand for new purposes that challenged institutional definitions and limits (Baker & Nelson, 2005).

Accordingly, the decision-making process combining globalization and innovation developments in context of SME seems to go through a path of opportunistic and network-based processes in which the entrepreneur, by its pivotal position, plays a central role. Those entrepreneurial bricolage processes, in which the entrepreneur engages himself, are part of the development of an embedded agency on which success depends to maintain and develop a virtuous circle of internationalization and innovation. This research proposition needs now to be tested.

## 2. Hiyoshiya: "Tradition Is a Continuous Process of Innovation"

### *2.1 The Extended Case Method*

In order to gain insights on the importance and role of entrepreneurs in globalization and innovation processes, an inductive approach was used, drawing on a single symbolic case study of a Japanese traditional *wagasa* workshop. Our approach was exploratory and anchored in the '*extended case methodology*' which aims to use substantial empirical data collected through a case study to re-conceptualize and extend existing theories (Burawoy, 1998; Danneels, 2002). In that effort, we leaned on a theoretical framework at the crossroads of several fields – international entrepreneurship, embedded agency, entrepreneurial bricolage – to construct a plausible understanding for underlying processes of importance and role of entrepreneurs in decision-making process of both globalization and innovation developments of their SMEs.

### *2.2 Data Collection*

Our choice fell on a single case study on which we had the opportunity to collect a large amount of data (primary and secondary) and to monitor *in situ* the strategic trial-and-error process of the entrepreneur. Given the emerging

nature of the research proposition that we weave, the single case study seemed well suited to understanding a complex phenomenon in its anchored context (Eisenhardt, 1989). Moreover, the amount of data and longitudinal analysis that we conduct can respond fully to the exploratory nature of our research. Finally, the validity of the case is not statistical but more analytical in that it sticks to the nature of our exploratory research mobilizing a symbolic event, rare and revelatory (Yin, 1990). Our method of data collection depends first and foremost on a close interaction with the entrepreneur who allowed us to retrospectively trace the evolution of his workshop over the past five years (2006-2011). For more than a year now, formal and informal meetings were held in France and Japan, punctuated by regular phone interviews every fortnight on past three months. The talks since February 2011 were recorded and transcribed; since then, the evolution of the firm has been recorded in a logbook. With the help of the entrepreneur, who opened his "archives", the corpus of data was filled by secondary data covering a longer period from 1997 to 2011. These were mainly of articles in the press, but also numerous internal documents, including keynote presentations he has made since 2005 as part of the project to export and internationally innovate. The use of different sources has allowed us to test the reliability of the evidence base through the degree of convergence found on the same traits (Campbell & Fiske, 1959) and establishes data triangulation (Jick, 1979). Data analysis was conducted through a three steps coding: (1) free coding to reveal the chronology and key dimensions of the case; then (2) an axial coding according our theoretical background; and then a selective coding to reveal bricolage underlying processes. Having achieved an empirical saturation, our choice fell on a case presentation in two parts that allows us to recreate the complexity of phenomena embedded in their temporality (Gombault, 2006). We will proceed first to a reconstruction of events in time – diachronic dimension – and then discuss the phenomenon in its complexity to cast a critical eye on the research proposition previously made – synchronic dimension of our analysis.

### *2.3 Data Analysis: A Diachronic Analysis of Entrepreneur's Emerging Agency*

Hiyoshiya is a time-honoured workshop founded in the Edo era (1600-1868). It has been making *wagasa* for 150 years using its know-how in working traditional materials mainly bamboo and *washi* paper. For this specific industry, 1950's can be considered as "*the golden age*", more than 14 million pieces were sold during the decade. Since the 1960's, *wagasa*'s market share suddenly shrank following the introduction and proliferation of plastic-like umbrellas made in China: only one million pieces were sold in 1975; half a million in 2000; roughly 350 000 in 2005. Consequently, the number of manufacturers fell dramatically from 450 to about 20 nationwide. In Kyoto, industry's birthplace, their number even shrank from 200 to only one survivor: Hiyoshiya.

Western umbrellas, mainly made in China, have now replaced the wagasa as western style dresses have replaced Japanese kimonos: surviving manufacturers now only respond to *niche* markets and specific needs such as tea ceremonies, theatre play or decoration purpose. Revenues decreased critically for averaging a million yen in 2010. Among the surviving companies, Hiyoshiya has found and walked through a new path. Unexpectedly, the small company which only consists of 8 people, run by a 37 years old young retired from the local government – Kotaro Nishibori, has been succeeding in developing new products, not only umbrellas but luminaires and other interior design products, fusioning new technologies and new designs, to meet with the needs of the age. Unexpectedly, the time-honoured shop has become a global time-honoured venture within less than 5 years now showing the way to the other struggling companies.

#### 2.3.1 1998-2008: A Trial-and-error Process of Diversification

The K. Nishibori's story begins with his marriage with the heiress of the centenary family-run company. After 2 years of training and learning the whole process of making a wagasa, he quit the local government where he was in charge of the promotion of the city to take over the company.

The fifth-President stepped in with the extinction of neighbourhood umbrella shops in a dooming traditional industry. Without knowing exactly what to do, he knows he has to do something to help the company go through it. Firstly, He is enterprising the only thing he has ever learnt to do: promotion and communication. With the help of his younger brother, web designer student, he set up an Internet home page and further a whole website. Hiyoshiya was the first wagasa company to be online, which gave it a real competitive advantage with the advent of Internet in Japan; owning the domain name wagasa, it is still one of the best-referenced manufacturer website on Internet.

Beyond promoting the company image, K. Nishibori realizes that the survival relies on his ability to develop new products, and first of all new umbrellas. However, he knows that he is not able to compete with Chinese imported umbrellas; he has to think of something slightly different based on the only resource the company has: its tradition and long-lasting know-how.

Since 2002, K. Nishibori and his team undertook a long time-spending study to depict the key factors of success of the 1950's wagasa: the daily use and the multi-functionality (protection as well as element of decoration) of the

product clearly established. During this period, he also learns a lot from competitors, and particularly from Fujisawa, an historical leader of the market, who stresses on the importance of design and the resulting capacity to offer customers diversified products with different shapes, materials, colors and motifs. Meanwhile, he and his team have been staying focused on their know-how and what made their products unique: bamboo ribs and the beautiful structure when opened. The result was an innovative wagasa "magnifying" tradition: light, compact, easy-to-take & carry, foldable, and which diffuses beautiful and gentle light through washi paper.

This is in this specific context that K. Nishibori engages the firm in its first step of diversification: the "*Kotori Lamp*" project. The idea of a lamp product emerged through the combination of patient observing, crafting and market researching. The story goes that K. Nishibori got the idea of making a lamp when he saw the beautiful light passing through the dyeing wagasa in the courtyard of the neighbourhood Buddhist temple.

However, the capacity of Hiyoshiya to develop a lamp product proved itself short; the first prototype consisted of a wagasa to which he simply has scratched a bulb and an electric cable ware. '*I realized very fast that I couldn't do it by myself and that I'd need the designer's help to develop new products. However, through this process, I knew, somehow, that the new product should be an umbrella-like product and come from our long-lasting tradition, our know-how and our production techniques. Otherwise, I will be loosing my identity*' (Interview2, KN, June, 2011).

K. Nishibori first collaborated with a well-known interior designer, M[r] Nagane, introduced by a private consultant helping him to develop Hiyoshiya's brand. The collaboration with M[r] Nagane doesn't turned out to be as effective as expected. However, the designer gave him the idea of a '*tube shape*', which was quite popular in the contemporary furniture business. '*The tube shape idea was fine and we made it ours; however, it was not good enough to create a strong brand image; it was also easy for the others to adopt it*' (*Op. cit.*). He tried to convince M[r] Nagane to work further on the foldable mechanism of the "wagasa-lamp", which could make the lighting product unique. However, M[r] Nagane didn't go with well and the collaboration ended up. He tried to move on with its team.

Along the process of conception, K. Nishibori has started looking for public support to finance the project. His experience as a former public officer gives him access to all the public SMEs supporting programs. In 2007, he decides to apply for the 'Kyoto Premium' program initiated by the local Chamber of Commerce and Industry and sponsored by the Ministry of Economy, Trade and Industry (METI). The program aims at promoting traditional SMEs by financially supporting their R&D activity in the field of interior design. Hiyoshiya was selected and becomes one of tenth Kyoto city 'ambassador' at two major interior design exhibition/fairs in France (Maison & Objet) and Germany (Ambiente) the coming year. In these fairs, K. Nishibori will meet with M[r] Kusano, a very influential consultant, working part-time for the Jetro (Japan External Trade Organization) and who invites him to participate into the biggest fair in the United States (ICFF) in 2009.

Thanks to his opportunistic managing director, Hiyoshiya has been able to display his prototype and make it a real sellable product with the feedbacks received on these major exhibitions. The final product is welcomed throughout Europe and two distributors in Germany and in Holland consent to test the product on their local market. In the United States, a major distributor was interested but finally rejected the proposal. However, he submitted the following idea to K. Nishibori : '*To tell you the truth, I do like the idea, I find the concept quite interesting; I don't like the product; made of bamboo and paper, it is too traditional; however, if you can make it more contemporary, use new materials; then I will think about it*' (Interview3-KN-July, 2011).

Along the Kotori project, and media exposure associated with its participation to the Japanese booths worldwide, K. Nishibori has been receiving some design collaborations from major designers. A famous object designer, M[r] Shimamura, comes up with a very simple idea: make a traditional umbrella an every day's product by using bamboo but also new materials. K. Nishibori joined enthusiastically the team project already composed of three members: the designer himself, a lacquer and a bamboo provider. In this project team, Hiyoshiya and K. Nishibori will be in charge of the assembling and the delivery of resulting new product – The *sinaru* umbrella.

Things really go fast: six months later the first meeting, a prototype is presented at the 100% Design Tokyo Exhibition (Oct. 2007). The product is then displayed 3 months later, without any change, at Maison & Objet (Jan. 2008). The *sinaru* umbrella is welcomed and first orders have been taken (300 pieces), but without informing K. Nishibori, who was in charge of the production: '*We have not sold products but only prototypes which were not finalised prototypes. (…) I was just in charge of a part of the process, only a part of it. Changes were always brought to the prototype; things weren't fixed and couldn't be fixed. However, we had to deliver our customers who had passed order and we did it awfully*' (Interview3-KN, July, 2011). As a result, there had been a real gap between the selling price fixed, at about 300€ per piece, and the expected quality of the product. 3 years after the launching of the *sinaru* umbrella, only half of the orders have been honoured; half of the products delivered have been returned and had to be paid back. "*In most cases, the complaints from retail clients who had received defective products or*

*who had not been delivered were sent to my company simply because it is easier for them to get in touch with me. The problem is that I couldn't fix it out and I couldn't have M^r Shimamura worked on it. It had been really a kind of nightmare during one year and half.*" (Interview3-KN, July 2011). Anyway, the product continues to be available on sale on net shops. But as learning, in 2010 K. Nishibori decides to withdraw from the project and promises himself to be only part of a project to which he can get control.

2.3.2 2008-2010: An Emerging Agency Power

As a response to the American distributor's challenge, '*making a more contemporary kotori lamp with new materials*', K. Nishibori firstly mobilized M^r Nagane who declines the offer after an unsuccessful attempt; he then asked M^r Kusano, the independent consultant, who introduced him a young and promising designer who works for the Muji Brand, M^r Miyake. There is a real spark between them: they share the same age and the same vision of what should be design collaboration. They make a good start with the project so that they decide to call it '*mekatori'* (mechanical kotori) to benefit from the public subsidies received for the development of the Kotori lamp.

The first prototype is made of bamboo, which makes easier adaptations and reduces the cost of development. It is showed to the American distributor early September 2009 who suggest making it of aluminium. The second prototype made of aluminium is presented early 2010 but is still not satisfying: it appears to be weak to the unfolding repeated movements. In addition, the lamp results in being heavy and really too costly to be made of aluminium. A third prototype, more convincing, is made of steel (fall 2010) then in ABS plastic (end 2010) which is adopted unanimously: the 'moto' lamp is born through this process of exploration and prototyping.

With regards to the conception and the production of the new lamp, K. Nishibori and his team initially planned to transpose the unfolding mechanism of the wagasa umbrella to the lamp. The advantage was twofold: it didn't cost a lot and the system has proved to be robust so far. M^r Miyake has been working with a Chinese manufacturer who is able to produce it cheap. He personally takes in charge the process of prototyping, working closely with the manufacturer to bring the necessary steps to make it functional. Beyond the lamp structure, the team is also meeting problems with electrical devices. Differently from what they did for the Kotori lamp project, K. Nishibori and M^r Kusano decide to establish a long-term partnership with Fuji Denko company, a 99% subsidiary of Koizumi Ligthing company for which K. Nishibori has been producing specific Kotori lamps. In a win-win strategy, Fuji Denko, which negotiates sourcing exclusivity, accepts to take in charge all the development costs underpinning electrical devices of the product.

Regarding fundraising of the project, K. Nishibori couldn't benefit from the initial public support granted to him for the kotori lamp project. They decided with M^r Miyake to apply for different interior design prizes to get media coverage and new public support. Accordingly, they got the famous 'IMF prize' at the Frankfurt Ambiente Exhibition in January 2010, which helped greatly Hiyoshiya – who takes the lead of the project – to be selected to two new METI programs: the 'Japan Brand' program, which is specifically dedicated to innovative SMEs in order to develop new products by using traditional know-how, techniques and materials; And also, the 'Japan Style +' program, which is more 'design-oriented' and aims at helping SMEs to develop the design of their products. Thanks to these two programs, K. Nishibori could present their whole collection of wagasa, umbrellas and lamps, new but also older products, at two major exhibitions in Paris in 2011 (Japan Brand Paris Exhibition & Japan Style + in Maison & Objet, 2011). This was the opportunity to find new distributors and consolidate its existing distribution network throughout Europe. Those exhibitions helped Hiyoshiya to get in touch with new partners, in order to launch new projects: for instance, collaboration with the group LVMH was settled to develop a nomadic lamp based on the same unfolding principle of the historical wagasa.

Meanwhile, Hiyoshiya's participation to European exhibitions in 2008 also gave K. Nishibori the opportunity to get in touch with the German designer, Jörg Gessner, who presents many advantages. First, he is used to working with Japanese manufacturers of washi paper used in the making of wagasa. Then, he often goes to Japan to follow up projects. Second, he has his own showroom in Paris where he can present his own collections but also other designer's collections.

Regular meetings between the two make the collaboration easier; and all the more than the two sides agree to share the leadership of the project and benefit of each interpersonal networks. Accordingly, the designer was responsible of design, communication and marketing aspects; and K. Nishibori was more in charge of technical, production and financial aspects of the collaboration. As a result, they were able to show the 'Jörg Kotori' lamp at the Paris showroom in 2009 and it was the starting point of new lamp improvements. Variations of the 'Jörg Kotori' initial lamp are thus introduced at the Japan Brand exhibition and Maison & Objet in 2011.

As for the development of the 'moto' lamp, it is worth noting that K. Nishibori insisted on keeping the kotori word in each of his project title in order to continue to benefit from the initial public support.

More recently, their successful collaboration, so far, has incited them to make a proposal to the Hermès Group. It is during one of the private exhibitions that Jörg had made possible the meeting with one of the Hermès family member and K. Nishibori. They engage themselves in the development of a new lamp called '*butterfly*', which would illuminate a new Hermès boutique in Paris from next fall 2012.

During this period, K. Nishibori had the opportunity to capitalize on the original success of the 'Kotori' Lamp. Contacts initiated in the first period and returns on experience on initial projects of diversification helped him to clarify routines and roles he has, to guarantee his commitment to new projects. These were the foundation of an emerging agency power, which he has to capitalize on.

2.3.3 From 2010: Capitalization and Benefits of an Embedded Agency Power

Meanwhile the development of the '*moto'*lamp and willing to take the most of the '*sinaru'* umbrella failure, K. Nishibori takes the decision in early 2010 to launch its own new umbrella project. Called '*Ryoten'*– 'ryo' for '2, both' and 'ten' for 'weather' – the new eco-friendly umbrella offers a twofold advantage by protecting from the sun and the rain as the wagasa used to. The structure is composed of ABS ribs – the veal made of a bio-plastic highly resistant, waterproof, and anti-UV. Moreover, *Ryoten* is designed to be printable, which makes it an original and potential media support for Brands.

Contrary to the Sinaru project development, K. Nishibori is the project initiator and makes sure he can manage and get control of the whole process of production and distribution. He makes the choice to get along with M$^r$ Kusano, the independent consultant with whom he works for the Kotori lamp development. They both choose to work with a very young and promising Swiss designer, called Olivier Franz: who is available, lives in Japan, speaks Japanese, and who is enthusiastic to be part of the project.

The team takes the decision to only work with 'mature' suppliers with whom they have already been working for years. "*On the sinaru project, Shimamura had chosen to collaborate with a Chinese producer which offered the best quality/cost ratio but that he never worked with; in the ryoten project, we chose a manufacturer that we know well and with whom Miyake and Muji had been working for more than 15 years*" (Interview4-KN, July, 2011).

This is also a consequence of previous projects and business relationships that K. Nishibori gets access to a bio-plastic supplier. Bio-plastic leaves are produced by Toyota Chemicals whose President, M$^r$ Shimura, has been introduced by M$^r$ Inoue: one of the former managing directors of Koizumi lighting Company for which K. Nishibori was producing specific Kotori lamps. "*M$^r$ Inoue has been very important for us; he has been introduced to me by M$^r$ Nagane who has drown several products for him and Koizumi Lighting; he is a top manager with whom I feel very comfortable; he's got an eye on me since our first meeting years ago; by the way, it was at that time, after having finished talking about the Koizumi Kotori lamps, that I told you that I was looking for a synthetic or bio plastic provider*" (Interview4-KN, July 2011).

Regarding the financing of the project, which couldn't benefit from public support for the development, K. Nishibori took the decision to take almost everything in charge: Hiyoshiya is the main contributor indeed, even if the other team members have some part of it. Beyond the initial financial plan, K. Nishibori has always been thinking of improving the business model by controlling all the production and distribution costs. Contrary to the *sinaru* project during which the cost inflation prohibited them to have retailers, K. Nishibori introduced a higher commission percentage from the beginning to make sure the distributors will be attracted by the products and will make their best to promote it.

All in all, the *ryoten* project marks a milestone in the Hiyoshiya's international development. It has been the first project in which K. Nishibori really had full control of the whole process from the conception to the distribution including research and development, manufacturing, assembling. Since, he has only been involved in new projects that can be handled by himself in hand with long-term partners, designers, providers or distributors: he has launched a new tea house that he introduced at the Shanghai Exhibition in Autumn and he has been engaged for example with K. Miyake in the development of a new lamp for Louis Vuitton Malletier for approximately a year. These new products developments allow him to pursue its international development, which enable him to develop more products and be involved in new projects in turn: he will be presenting mid-April 2012 his new products collection successively at the Light & Building Fair in Frankfurt and at Milano Salone Festival. Last year 2011 had been so far the best year ever for Hiyoshiya: its revenues increased almost 20%, achieving 45% of its annual sales internationally.

To summarize all this, Figure 1 presents key innovation projects, internationalization phases and business networks in their chronology. Next section presents our selective coding and our synchronic analysis.

## 3. Results: A Synchronic Analysis of Entrepreneur's Embedded Agency into a Continuous Global Innovation System

### *3.1 Network-based Decision-making Process in Context of SME*

Previous researches have emphasized on importance of network relationships of decision-makers in regards to both innovation and internalization in context of SMEs (Collinson & Houlden, 2005). Most of these researches focus on a utilitarian perspective of social networks' mobilization by entrepreneurs (Coviello & Munro, 1997). Rather than a utilitarian approach, our case study stresses on a more 'effectual' perspective of the network-based decision-making process (Sarasvathy, 2008). Indeed, during first stages of Hiyoshiya's development, K. Nishibori starts from a bunch of resources at his hand (traditional know-how, social relationships formalized from his previous activity, awareness of financing programs…) to figure how he can deal with the adversity of the family workshop in a declining industry.

In order to get access to new resources (financial, designers, suppliers…) requisite for its innovations, K. Nishibori had to engage in return his firm in some counterparties. For example, financing programs of the METI helped K. Nishibori to fundraise its R&D in exchange of becoming an ambassador of Japan in different exhibitions around the world. In fact, by leveraging direct business networks to access resources, K. Nishibori gets effectively access to these resources (designers, suppliers, clients…), and in return stretches his own business network. In that sense, the development of the firm depends on the original dotation of business networks in which the entrepreneur is embedded. Progressively, K. Nishibori gets in touch with famous designers, identifies relevant suppliers, while prestigious clients identify him as a relevant partner to work with.

Accordingly, the 'effectuation' rationality of decision-maker assumes the centrality of the entrepreneur in its ability to construct conditions of success along the way (Sarasvathy, 2001). By leveraging business networks in which he is embedded, the decision-maker stretches his social network and access to more remote resources as one goes along internationalization and innovations. This 'stretch and leverage' perspective of network-based decision making relies on a trial-and-error process of learning, during which the entrepreneur becomes progressively aware of his power of agency.

### *3.2 Understanding Entrepreneurial Bricolage Processes*

In project activities, the trial-and-error process of learning relies on different bricolage processes. At first stage, when K. Nishibori took control of the family business, his first action was to do what he does the best: promotion and communication – implementing with his brother their know-how to develop the firm's Internet website. In the late 1990s, it was quite a breakthrough in this sector and it helped him to get in touch with new persons and interest groups. Leveraging creatively and voluntarily his personal know-how, even recombining the firm traditional know-how to the development of new products (lamps), prefigure conditions of entrepreneurial bricolage processes at work.

Each project contributes to clarify the process through which the entrepreneur creates/builds up conditions for his success. Obviously, even if the project turns out to be a failure, there is a place for learning. For example, the *Sinaru* Project helped K. Nishibori to identify precisely the importance to get control on key activities for future projects.

The longitudinal description of our case study reveals the ability of the entrepreneur to 'create something' from nothing by recombining more effectively whatever resources he has at hand (Baker & Nelson, 2005). Firstly, the entrepreneur accumulates resources (materials, business relationships, financial), which extend the range of possibilities. Secondly, this process of accumulation relies on discursive strategies with key actors. These meetings held with designers on exhibitions and exchanges with consultants and institutional partners create opportunities and provides K. Nishibori new resources. Finally, success breeds success. First prototypes convince 'artifacts', which contribute to give credibility to Hiyoshiya in its new business network. This reflexive learning on projects helps K. Nishibori to understand maneuvers and strategies to guarantee success of his involvements.

Consequently, internationalization and innovation were more results than causalities underlying decision-making of an entrepreneur in a doomed industry. Trial-and-error processes and bricolage processes underlying projects and prototyping in which he engages his firm, design the trajectory of both internationalization and innovation.

### *3.3 The Entrepreneur's Embedded Agency: Toward a Global System of Continuous Innovation*

Neo-institutional literature reveals a 'paradox of embedded agency' to address challenges of change in institutional fields (Battilana & D'Aunno, 2009). K. Nishibori was able to extract his firm from taken for granted historical practices of his institutional field because he was initially an outsider. This movement of regeneration and change in the industry rely on interlocking business networks and involvement in projects of diversification according to a traditional know-how. Entrepreneur's vision is focused on the survival of the family business in a doomed industry.

As we mentioned earlier, K. Nishibori considers that: "*Tradition is a continuous movement of innovation*". Each project and each relationship were oriented to nurture this vision and get physical evidence in terms of innovation on products (Lamps) and markets (internationalization). Each project, in which he engages his firm, conduct K. Nishibori to get conscious and develop a competency of an international project manager. These competencies reinforce his position in a global system of continuous innovation. Accordingly, as Figure 1 present it, the more Hiyoshiya innovates and the more effective Hiyoshiya is in its time-to-market (represented by dotted lines before projects on the figure).

Hiyoshiya is now still one of the last firms performing on the traditional know-how of *wagasa*. Its trajectory in terms of diversification reveals opportunities for other firms in the industry. For example, Hiyoshiya's main competitor, Fujisawa company, has very recently engaged in a diversification of traditional *wagasa umbrellas* to the interior design industry with tables based on the traditional know-how. Accordingly, K. Nishibori has acted so far as an institutional entrepreneur without a clear consciousness of the implications of his actions on its industry and the taken for granted practices in the traditional *wagasa* industry. However, it is clear enough that its successes in the interior design industry have introduced new practices in the *wagasa* industry: co-development with designers, a global market approach of the business, working with new suppliers, promotion of Japanese innovation based on traditional know-how.

## 4. Discussion

### *4.1 Understanding Globalization and Innovation Dynamics of SMEs under Consideration of Entrepreneur's Agency Power*

According to the mainstream of research, the Uppsala Model (Johanson & Vahlne, 2009) provides with a linear and sequential process of internationalization with incremental learning (Keupp & Gassmann, 2009; McDougall & Oviatt, 2000). As mentioned earlier, even the proponents of the International Entrepreneurship School (Rialp, Rialp, Urbano & Vaillant, 2005; Knight & Cavusgil, 2004; Sharma & Blomstermo, 2003) have difficulties reaching a different way of thinking. Hiyoshiya Case Study suggests a more complex dynamics in which innovation and internationalization combine each other to help the firm to develop worldwide. Internationalization was not part of entrepreneur's original intentions; it has become the principal kick-start to innovate as innovation turns out to be essential for its international development.

Furthermore, contrary to empirical studies which tend to confirm this statement without any consideration to the central role played in both internationalization and innovation (Bacq & Coeurdevoy, 2010), the case study makes clear the role played by K. Nishibori in the decision making-process. The entrepreneur has not a clear understanding of the role he has to play from the beginning; he takes conscious of its role and his agency power progressively by getting involved himself in different projects and building relationships.

Committed to projects, he first uses resources at hand and then learns through bricolages and in relationships as its business network expands. In other words, he has been acting and taking his decisions more in an effectual way trying to transform possibilities into business opportunities (Sarasvathy, 2001, 2008) than in a strictly causal decision making process. As, Sarasvathy mentioned that: "effectual reasoning does not begin with a specific goal. Instead, it begins with a given set of means allows goals to emerge contingently over time from the varied imagination and diverse aspirations of the founders and the people they interact with." (Sarasvathy, 2001). Accordingly, if innovation and internationalization decision making reveal itself through time, our case study explores and reveals some processes at work and interlocking business networks, artifacts and entrepreneur's aspirations.

### *4.2 Implications for Entrepreneurs: Enhancing Their Agency Power*

The research through this case study suggests that the internationalization could be a good opportunity for entrepreneurs to expand their business networks to help them to innovate and better respond to markets needs. However, this opportunity relies on the ability of the entrepreneur to get and develop their agency power. As we pointed out, entrepreneurs should make sure that they can get themselves, or in collaboration with long-term partners, fully control of the process of innovation and internationalization.

This agency power rests on entrepreneurs' capacity to exploit their own resources that they had at hand and to explore new remote resources that they need to innovate and go global. Doing so, they need to develop 'political skills' as they mainly can get access to these resources through networking and building long-term relationships.

This research also highlights for the entrepreneurs the importance of intuition, improvisation, bricolages and other skills to be able to recognise the positive changes they are facing with and take the most of the emerging opportunities in or out their industry.

*4.3 Methodological Limits and Research Agenda*

This research relies on a single case study, which is coherent with the choice of an exploratory study. However, it is necessary to explore other case studies embedded in different contexts to be able to generalize the results of this exploratory study. Presently, Hiyoshiya innovation trajectory has influenced other competitors to get involved in new product development. The leader of the market, Fujisawa company, is now trying to develop a new table based on the unfolding principle of the wagasa. Other smaller companies are also exploring new options for diversification. The study of these new trajectories will allow a more global view on the impact of the Hiyoshiya innovative strategy in its institutional context.

We must also mention a potential cultural effect as a long-lasting tradition of internationalization in Japan may alter the preliminary results of the case study and put too much emphasise on internationalization in Hiyoshiya strategic trajectory and other company efforts to get out of their critical situation.

This research was purely exploratory regarding the theoretical background and a symbolic trajectory of an entrepreneur. Our research goal was to understand and explain the singular trajectory of an entrepreneur in a doomed industry and dynamics by which he transformed a dead-end situation to a global system of continuous innovation. Our results emphasize on an effectual rationality of the entrepreneur, which decision-making processes are embedded in his interactions with his expanding business network and artifacts from bricolage processes. Accordingly, we need further researches and case studies to describe SMEs' effectual rationality at work in context of innovation and internationalization.

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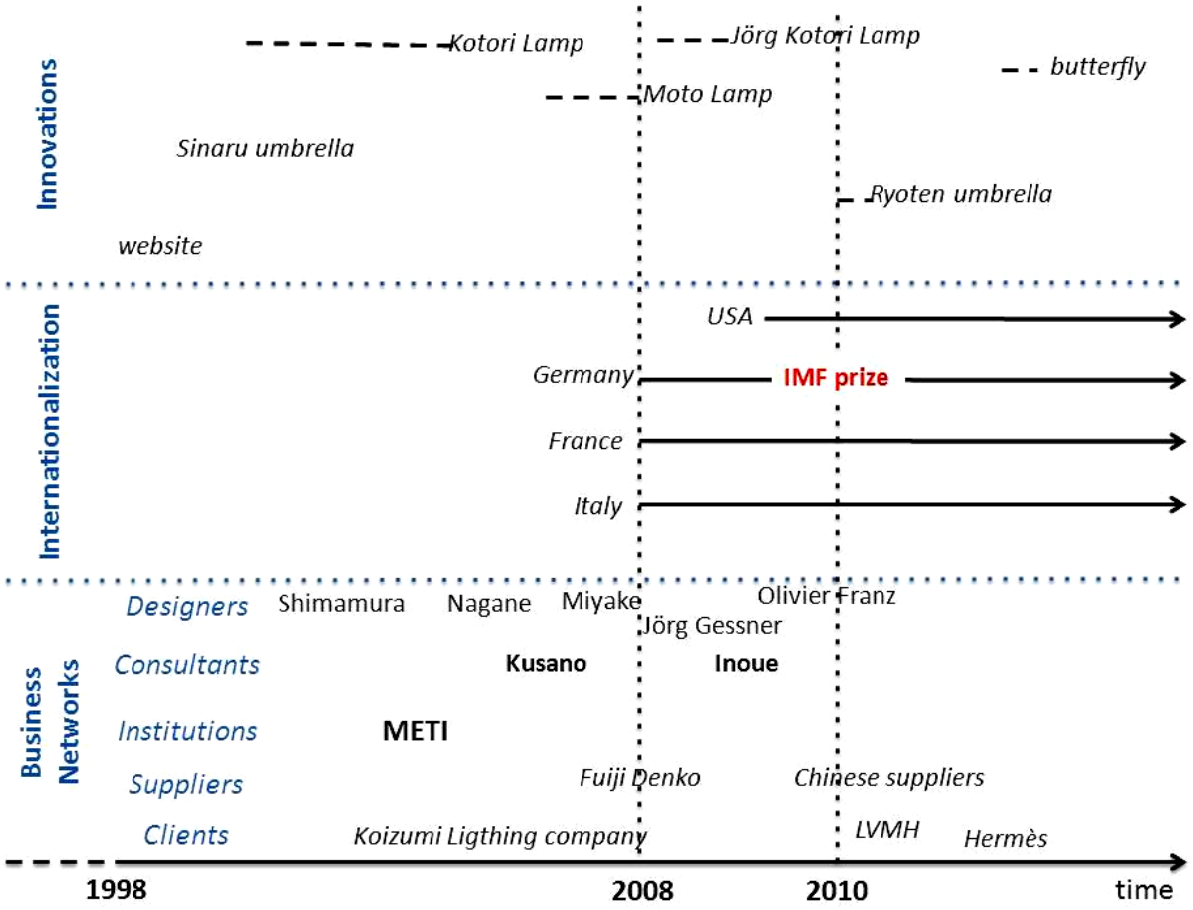


Figure 1. Hiyoshiya's trajectory of innovation and internationalization under consideration of its Business Network expansion

# Interpersonal Cooperation in Multicultural Working Context

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**Abstract**

The cooperation process has hardly been studied in multicultural organisations. Empirical and theoretical studies have identified its functioning process by its nature or by its stimulating factors; however there is a lack of research concerning the interpersonal cooperation process in intercultural organisations. This research paper proposes an interpersonal cooperation model elaborated firstly in a mono-cultural working environment, which is then applied to an intercultural organisation in order to elaborate a cross-cultural model for cooperation. The model suggests that interpersonal cooperation is a dual process and based on a political dimension (a calculation process of individuals which can prevent cooperation) and identification dimension. Based on an empirical research method, the paper presents the application of the model through an inter-site case study including 30 interviews in an international company amongst 10 different nationalities. Moreover, the case study stresses that the political dimension of the model is not relevant in an intercultural context because the identification dimension prevails. The identification process reflects a strong organisational culture of the company Prometheus which has a human resource management focus on a common understanding of others where the national cultural differences become secondary (based on an anthropological conception of human beings). Finally, the theoretical implications of the study argue that interpersonal cooperation process is not the same in mono-cultural and intercultural organisations. It can also be concluded that managers should build a strong organisational culture in intercultural organisations and multiply common interpersonal projects in order to create a strong feeling of belonging to a work group and to a company.

**Keywords:** Interpersonal cooperation, Multicultural organisation, Social identification, Organisational culture

## 1. Introduction

Cooperation in organisations is at the heart of managerial and academic reflections. Understanding collective action in organisations challenges managers who try to coordinate team work in companies, but also academic researchers who wish to understand the nature, foundations and effects of interpersonal cooperation. If some recent empirical and theoretical studies contribute with new responses to this understanding (Bernoux, 1995; Zarifian, 1995; Dameron, 2003-2004), they nevertheless remain limited to mono-cultural work groups in organisations. Yet, the complexity of multicultural organisations and the difficulty to get employees representing different cultures to work together makes it necessary to complete more studies on the understanding of interpersonal cooperation in a multicultural working environment (Adler, 1986; Chevrier, 2000). According to Cox (1991) multicultural organisations refer to the degree to which an organisation values cultural diversity and is willing to utilise and encourage it. Organisations can diverse in terms of gender, race, ethnicity, and nationality.

The theoretical field of intercultural management is indeed characterised by the absence of empirical work allowing the comprehension of interpersonal cooperation in a multicultural working environment. Intercultural studies are mainly focused on the increasing diversity of the workforce and on the rising importance of teams and teamwork in the organisation and operation of organisations (O'Reilly, Williams & Barsade, 1999). However previous studies still hang on the question of different mechanisms of interpersonal cooperation between cultures. The primary

purpose of this study is to extend previous research and in particular to examine if cultural differences influence cooperation between group members in multicultural work groups.

This article, based on an empirical interpersonal cooperation model recently developed in a mono-cultural context (first part), seeks to explore its validity in a multicultural context (second part) through a study on five multicultural work groups. The research data analysed proposes then a model for interpersonal cooperation in a multicultural working environment (third part). Our results suggest particularly the importance of the question of social identification as a main mechanism for cooperation. Finally, a discussion of these results and suggestions for further research are presented.

## 2. A Model for Interpersonal Cooperation in a Monocultural Working Environment

According to De Bandt (1996), "*cooperation consists in working together for the realisation of a common objective*". In this sense, the individuals who work together accept to share their knowledge and their efforts in order to obtain an objective. Cooperation is then characterised by a common willingness to build something in common (Bercot & De Coninck, 2003). As Capul (1998) states, "*cooperation stays submitted to the only initiative of employees […]. Cooperation can be characterised as a bundle of ties voluntarily built between employees […]*". But what is the nature for these ties?

Dameron (2001; 2003; 2004) identifies two different dimensions for the cooperation process on the basis of her observation of several project groups in charge of developing new products in French car companies. Chédotel (2004) and Soparnot (2006) validate this typology following their empirical studies in French companies (including different activities such as the pharmaceutical industry and the car industry). These different studies confirm the existence of two factors for the interpersonal cooperation process. The first one, as qualified by Dameron is defined as a "*complementary cooperation*". This cooperative action is defined as a calculation process focused on the access to resources. In this cooperation process the strategy is linked to individuals' rationality. The second one, called a "*communal cooperation*", can be defined as belonging to a group where social exchanges characterise individuals' rationality.

### *2.1 The Complementary Cooperation Process*

According to Crozier and Friedberg (1977), the cooperation process between individuals questions collective action and in particular its relationship with individual actions because cooperation can be seen as a tension between collective action and individual conflict forces. These authors try to understand how an articulation can be realised between the two realities: individual liberty and the existence of organised and coherent systems. Organisational strategical analysis (Crozier & Friedberg, 1977) refutes theories which consider that individuals working in organisations can be assigned to a precise role with a rational behaviour. On the contrary, the individual uses a "limited rationality" which orientates his/her behaviour. This rationality is seen as an expression of a game strategy, a kind of totality of constraints to be discovered in a social and organisational context. The decisive element of behaviour is understood as a game of power and influence in which an individual takes part and through which he/she affirms his/her social existence. Here, the individual is no more subject to the rules but he/she is playing with them.

The relationships between individuals are considered above all as relations of power that secure to individuals the control of uncertain situations inherent to all systems of collective actions. The authors underline that "*collective action is not an unfounded exercise […]. The invented constructions of collective action can certainly redefine and rearrange problems; but neither their configurations nor their concrete modalities nor results can stay abstract of the property of the inherent structure; because the structure contains the most fundamental element which is uncertainty"* (Crozier & Friedberg, 1977). This is why individuals' behaviour must be analysed in terms of constraints and organisational opportunities.

The works of Crozier and Friedberg are the origins of the political approach to the cooperation process underlining individuals' power and division; interpersonal cooperation meaning in this context is a calculated behaviour. In this sense, cooperation means converging of interests, at least momentarily, linked to resources which are useful to the management of individuals' personal strategies. A calculated cooperation is founded on a social act of an action system containing opportunities and changing constraints. This is why cooperation can be defined as "*an indeterminate*, *non programmable and non prescribed process*" (Capul, 1998) because it depends first on individuals' political will. This political factor is not however the only explanation for the act of cooperation. It must be completed by an affective factor which can be described as a communal cooperation.

### *2.2 The Communal Cooperation Process*

Mayo (1933) indicated the importance of groups in understanding individual's socialisation (Note 1). Here, the individual exists as a human being who demonstrates his/her identity through different relations he/she has inside a

group. To the question "who am I?" the individual answers by referencing to a group (or groups) to which he/she assigns his/her membership (Pratt, 2003). (Group membership is therefore at the heart of an individuals' identification process. This has been described as the theory of social identity or TSI as developed by Tajfel (1978), Elsbach (1999), Tyler (1999) and Pratt (1998; 2003).

According to TSI, the feeling of belonging to a social group (professional, age, gender, etc.) and being part of this group characterises an individual's identity (Tajfel, 1978). Therefore, the identification process reveals three phenomena: the individual considers himself/herself as a member of a group; he/she adapts his/her characteristics/stereotypes to the group in question and acts in a manner that distinguishes his group from others (Turner & Pratkanis, 1998). This kind of conformal behaviour and discrimination characterises individual's way to link to a group. The theory of social categorisation or TSC (Turner, 1987) extends then the TSI theory and refers to the method of elaboration of group borders (existence of *ingroup* and *outgroup*). According to TSC, the individual selects from the point of view of himself/herself social groups to which he/she gives prominent traits and to which he/she identifies himself/herself. These traits correspond to a prototype of the individual's values, rules and norms closest to his/her *self concepts*. In this sense, he/she keeps away from those groups whose prominent traits are too far from his/her conceptualisation of self. The TCS theory underlines however that the individual can arrange his/her conceptualisation of self in order to better correspond to another group's prototype. In other words, an individual's social identification is based on a perception of different groups (different categories) prominent traits and of a concordance of his/her own traits or conceptualisation of self.

The approach of the two theories (TSI and TSC) proposes then an interesting analysis on the interpersonal cooperation process (Chédotel, 2004). In terms of these theories, a collective final action (or cooperation) corresponds to a demonstration of a common identity in a group. Individuals develop and preserve a common identity when sharing the same objectives in a common interaction between members in a group (*ingroup*). Cooperation is then a way to be recognised as a member of a group (Tyler, 1999; Dubar, 2000). In the communal conception of cooperation acting together becomes fundamentally an identifiable resembling between individuals which characterises the group. The cooperation process is then the results of values, norms and common rules (prominent traits of a group) that depend on its existence and development. Therefore, cooperation is based on a rational identification (Dameron, 2004).

This double understanding of cooperation informs us about the foundations of cooperation and its nature (Figure 1). In a complementary approach, an individual's strategy explains the social link based on a particular interest and negotiation. In a communal approach, an individual's socialisation is the foundation for the cooperation relation in which an individual can reinforce his/her social identity. Moreover, these two cooperation logics are not mutually exclusive: they can be combined and mixed in order to translate the ambivalence of the cooperation phenomenon (Sainsaulieu, 1977; Dameron, 2004).

From now on, it will be examined how this interpersonal cooperation model, developed in a mono-cultural working environment, can be applied to a multicultural working context.

## 3. Research Methodology

This part of the paper will present our research methodology and the source of the data.

### *3.1 Description of the Prometheus (Note 2) Company*

Prometheus is a global information company providing information for the financial services, media and corporate markets. While best known as one of the world's largest international multimedia news agencies, more than 90 % of its revenues derive from financial products including equities, fixed income, foreign exchange, term deposits and commodities and energy markets around the world. The firm was created in London in the 19$^{th}$ century, today it consists of more than 200 agencies in 130 countries. These agencies employ around 15 000 members working in 19 languages, representing 123 different nationalities. The multicultural workforce represents professions such as journalists, engineers and administrative staff that work mainly in multicultural teams. The engineers are specialists in technical solutions and in programme installation (information software); administrative staff work as generalists or specialists with knowledge on risk management/solutions, treasury, asset management, investment banking and brokerage.

### *3.2 Description of the Multicultural Work Groups*

#### 3.2.1 Team 1

The first group differentiates itself from the others because it is the only permanently based group where all employees work together with their team supervisor. Their permanent working situation seems to be favourable in

creating interactions between employees, in developing exchanges and facilitating the circulation of information, being both formal and informal in the group. The group also engages activities outside working hours.

The members of the group represent different cultures (American, Luxembourg, Belgian Flemish and French). The small number of team members facilitates the unity in this group and prevents members from the same nationality from getting together (this is the case in bigger groups). In this kind of small group, the spatial, social and cultural proximity helps to create certain common motivations, emotions and values: *"I think it is very positive to work in a multicultural environment. We have no pressure between cultures. There are some stereotypes, of course, but the personality of the colleague is important, it goes beyond the national culture"*, says an account manager of Belgian Flemish nationality.

3.2.2 Teams 2 and 5

The other two groups present quite a different situation compared to the first group. These groups are composed of engineers, who work most of the time in client firms and are rarely present in their local agency. Because of this working situation, the interactions are very limited between employees. Interactions between engineers are also constrained by the habits they choose to adapt in their professional lives: *"Communication is very formal between engineers, because they are between men"*, explains the French team supervisor in Luxembourg. It seems indeed that engineers are less "talkative" by nature and prefer communicating by informal way (mails, mobile phones). These two groups are also bigger in quantity of employees and this allows the employees of the same nationality to get together: *"The Luxembourg nationals like forming clans and they communicate in their native language. The same language unites them"*, says the French team supervisor. In spite of this mobile working situation of engineers, strong social ties can be observed with meetings after working hours or during lunch time.

As in the case of the first group, cultural differences seem to be balanced. Differences between engineers are more due to their profession than to different nationalities present in groups: *"Between engineers, there are cultural differences linked to their profession. Some engineers that have graduated from the most famous schools consider themselves to be the elite of the profession and separate themselves"*, states the French Marketing Manager in Paris. *"Actually, we observe some stereotypes amongst engineers, for example, the French engineers get together and consider themselves as the best in the world"*, notes the Human Resources Director in Luxembourg.

3.2.3 Teams 3 and 4 or the Virtual Teams

Compared to the "traditional" work groups the virtual groups are not only complex in their functioning but also in their interactions. They face problems associated with working conditions in virtual teams, such as the problem of trust related to the distance between employees. Employees working far away from their collaborators and meeting each other rarely lack socialisation and cannot develop mutual trust like employees working together on a daily basis: *"We have a problem of proximity; we seldom meet people with whom we work. Distance between people creates problems when they are of different origins. For example, it is difficult French and English employees to understand each other. How can you know that an Englishman never says no? His yes can mean no. It is easier to understand him when you face him"*, says the French team supervisor in Paris; *"We would like to meet our colleagues to get to know each other", because our discussions on phone are of purely "academic" interest"*. In spite of efficient means of wireless communications (internet, mobile phones, videoconferences) that connect employees daily *("We communicate essentially through mails or videoconferences – our communication is 80 % non verbal"*, states the team supervisor from the Brussels agency), these employees suffer from the physical distance from their collaborators. Obviously, the best technology cannot always replace the human presence in working relationships.

In the case of virtual teams, the culture variable can create more problems than in other teams: *"Distance creates difficulties when you work with other cultures"*, as explains the French sales professional in the Paris agency. According to this team supervisor, face-to-face meetings are necessary to understand colleagues from different cultures. We need to specify that the culture variable seems to create more problems in the case of team 4 based in the Paris agency than in the case of team 3 based in Luxembourg where it is hardly noticed by the employees. We understand that this situation depends a lot on the difference based on the group management and on the characters of managing directors (participative management versus IT management).

*3.3 Research Methodology*

Our research methodology is based on an empirical approach close to ethnosociology (Chanlat, 2006). This approach directly contacts individuals and groups in the field by translating and analysing their perspectives, perceptions and interpretation of the surrounding environment. The methodology uses practical methods like ethnography to observe individuals. This is why we chose face-to-face interviews as an approach to meet individuals

in their working places and to understand the complexity of the multicultural environment. Our methodology enabled us also to observe through our inquiry the cooperation process between multicultural employees. Our data was collected in Prometheus Company between May-October 2005 and includes 30 interviews. These interviews were semi-directive and based on a "theme-question" guide prepared in advance. The individual interviews lasted between 30 minutes and 1 hour each. The data has been analysed afterwards with the inter-site cases method suggested by Miles and Huberman (2003).

The empirical research data is based on observation of five multicultural work groups. These work groups represent the types of group existing in Prometheus. In order to obtain interviews useful to our research meetings with employees were carefully planned in advance with the support of the management. The employees were able to participate in our inquiry on a voluntary basis inside chosen multicultural work teams. Each employee was interviewed alone, not in group, so that he (she) could express himself (herself) freely without being influenced by the surrounding group. The interviews took place inside each agency in question in order to respect the social and cultural proximity of the working environment.

The members of these multicultural work groups were interviewed in three different countries (Belgium, France and Luxembourg) including the employees representing 10 nationalities (Algerian, American, Belgian, British, Dutch, French, German, Greek, Italian and Luxembourg nationals). Additionally, three human resources directors participated in this investigation (Note 3).

Our research process may be described as follows:

1) Interviews with multicultural work groups situated in Luxembourg and Brussels. These groups were:

a) A Sales Group composed of sales professionals. This team was based in Luxembourg.

b) A Client Training Group composed of engineers and training specialists.

c) A Professional Service Group composed of engineers working with client firms.

The Client Training group and Professional Service group were mobile teams that worked in Luxembourg and Brussels. Six employees were interviewed in these multicultural work groups.

2) Interviews with two virtual teams. These groups were:

a) A group of Risk Management professionals operating in eight countries. This team is managed by a Belgian Sales manager based in Luxembourg. The Manager coordinates the work of 20 employees in the team. Twelve members of the group were interviewed.

b) A group of marketing specialists. This was a group of 40 people based in Paris. The manager of this team was French. Four employees of this group were interviewed.

## 4. Results and Discussion

In the multicultural working environment, as studied in the Prometheus Company, the cooperation process is based mainly on the factor of a common identity and this can be explained in terms of the second dimension of the model, communal cooperation. The cooperation process corresponds to a common identity that is developed and preserved by all multicultural employees. This common identity can be characterised in terms of a favourable perception of diversity and of a favourable recognition of others shared by the employees. It can be explained through HRM policies that are orientated awards building internal common values in the company. This very cohesive organisational culture has a homogeneous role in reducing the negative effects of cultural differences.

### *4.1 The Cooperation Process Based on a Common Identity*

"We are all the same" could be the slogan for the Prometheus employees. It seems that in the Prometheus Company there are no national identities but all identities converge to a common social identity developed inside the firm. Being a multicultural worker is seen here as a favourable factor that is encouraged by the identification process in the use of the same rules, values and norms inside work groups. This observation underlines the communal cooperation dimension and can be linked to the works of Tajfel (1978), Elsbach (1999), Tyler (1999) and Pratt (1998, 2003) and to the theory of social identity. Consequently, the employees adapt their behaviour to those of the group in order to resemble others. This suggests the relevance of the theory of social categorisation as a key element for analysing the cooperation process complementing the TSI.

*The favourable perception of diversity*

In our analysis on interactions between individuals in multicultural work groups we focused on the part of the culture variable in these interactions. We had several questions in our inquiry on perception of culture, on perception of stereotypes and on the acceptance of others. As result, we could conclude that nearly all employees interviewed in

different agencies around Europe had a positive attitude towards diversity in teams. Only three employees from the Paris agency (Team 3) expressed reservations about this issue. Their reservations can be explained by the fact that they had recently joined the company after a merger with a French firm and that they had in particular many language problems in their working environment.

Considering stereotypes in groups, most of the employees recognised that there are lots of stereotypes in interactions between colleagues. Here again, the members of the Paris team experiencing language problems distinguish themselves from others, because they have less contact with their colleagues. In general, these members ignore stereotypes. According to the employees, meetings reveal stereotypes between colleagues: *"The stereotypes are very present in our meetings, between French and Germans, for example, and between Belgians and Dutch. There is a belief that the Dutch are more professional than the Belgians"*, Belgian (French) national from the Brussels Agency. Many stereotypes are linked to the behaviour of individuals representing neighbouring countries. *"We don't have any conflicts. Our Flemish and French speaking employees are the same at work. They stay very diplomatic. The Belgians are modest and the Dutch are more direct and transparent"*.

Despite the cultural differences that reveal through stereotypes, the employees consider things very positively: *"Working in a multicultural environment can only be positive,* says marketing commercial of Algerian nationality from Paris agency. *I think we must forget the stereotypes. We are not so different anyway. For me, it is a question of good sense. What counts is people, their lives, their reactions"*. The Sales director from Brussels underlines that working in a multicultural environment means learning all the time and adapting to situation: *"Working in a multicultural environment is not an obstacle, but it is a question of preparing and educating people. Managers must first be aware of cultural differences that exist between team members; afterwards it is a question of adaptation. For this, they must learn to know themselves and the others; they must go beyond stereotypes and share things with their collaborators also outside work"*.

Table 2 above shows that all the teams interviewed demonstrated a favourable perception of diversity in the company. For many, the multicultural working environment is a choice and enables a better understanding between oneself and the others. Many employees see it also as an opportunity to develop their language capacities and openness. Besides this favourable conception of diversity, we observed how the employees recognise others in groups. These interactions demonstrate employees' adaptability and facility in integration in the company because of the common identity developed between colleagues.

*The favourable recognition of others*

While considering the interview results on the perception of culture, on stereotypes or on the recognition of the others, we noticed an over-whelming tolerance that characterises the Prometheus employees. The impact of the positive attitude to diversity and the feeling of work satisfaction in this kind of environment are the factors that contribute to cooperation, argues Mrs Wagner, the Human Resources Director in Luxembourg: *"We have noticed that the multicultural working environment increases employees' performance in their daily work"*. The consequences of this common attitude towards the multicultural environment can also be translated as a common behaviour that characterises Prometheus employees. As we noted above, this common behaviour gives a strong common identity to the whole staff of Prometheus, because it gathers together all different cultural identities and goes beyond national culture. The characteristics of this Prometheus culture (defined as an organisational culture according to Schein, 1992) can be described through four aspects as follows:

(1) Despite the strong common culture of the company, conflicts exist in the company (mostly related to language problems) but these situations are limited and rarely disturb cooperation in teams. Many employees think that the colleague's cultural background is not connected to the conflicts: *"There are some problems in teams, but they are not related to cultures […] they are more due to individual characters and personalities"*, French supervisor of engineering team; *"Everything depends on the personality of the colleague"*, Belgian engineer. Most of Prometheus employees prefer to talk about "*momentary tensions*" or "*misunderstandings*" instead of conflicts: *"Sometimes, we have some difficulties in understanding each other"*; *"If we know each other's customs, there are less problems"*, team supervisor in Brussels; *"I would rather talk about confusions or conflicts of interests related to the work not to the persons in question"*, Dutch Sales professional.

(2) Even if the strong organisational culture amplifies the perception of the difference between nationalities, it does not prevent the presence of the stereotypes.

(3) In general, the employees' reactions confirm an overall satisfaction with their working environment. Different factors contribute to this: curiosity about other cultures and a sense of personal enrichment as a result of contacts with members of other cultures.

(4) Our data shows that the organisational culture of Prometheus is based on a universal conception of human beings (in its anthropological meaning) which considers all individuals defined in origin by common biological characteristics. In other terms, as Hall (1971) puts it, this theory defines first a universal basis for understanding human beings physiologically, to which cultures confer a structure and a signification. Many employees interviewed shared the conception saying: *"People are different, it is a question of personality"*, or *"The personality of the colleague goes beyond his national culture"*. This kind of conception not only gives a favourable perception of diversity but also enables everyone to recognise their place in it. As result, it is more important for Prometheus employees to know other colleagues as individuals – by their personality and character – than to refer to their national culture, which in this case becomes a secondary factor ("*The personality is more important than the national culture*", Belgian (Flemish) Sales professional; "*The personality is important, one's life, one's reactions*", Algerian marketing professional).

In conclusion we believe that this organisational culture is (1) a common conception which does not exclude conflicts but limits their development; (2) contains still stereotypes but through a common conception, individuals act with more comprehension and tolerance; (3) seems to contribute to make internal integration easier, and (4) is the basis for the recognition of others and therefore a basis for acceptance and integration without discrimination. This organisational culture seems to be very tolerant and rational where the employees control different situations (even difficult ones). During the interview analysis we observed rationality and diplomacy in the responses given by employees. We think that this is due to the level of employees' education, to their social background and to their capacity in evolving in an international environment. We should not forget that the Prometheus multicultural environment is a result of a very careful recruitment process where Human Resources have chosen a certain type of person capable of working in this particular environment.

### *4.2 The Anthropological Conception of Interpersonal Cooperation as a Management Tool*

The universal conception of human beings can be seen in the centre of the general policies for multicultural Human Resources Management in Prometheus. This policy is the basis for assembling cultural differences without discrimination. All management practices (recruitment, intercultural training/coaching and conflict management (Note 4)) and tools (recruitment tests, different intercultural training programmes, participative management and mediation) contribute to promote the organisational culture and the acceptance of the multicultural environment in the company. As the study reveals, HRM operates on different levels in the organisation: (1) on an organisational level: it seeks to assemble differences (different cultures and professions) through "smart working" policies by arranging favourable working conditions; (2) on a human resources management level: where it applies different practices and tools that contribute to cooperation between cultures; and (3) by constructing an organisational culture that aims to gather together different cultures and different cultural identities (to promote a global common identity). Due to the strong organisational culture, there seems to be fewer conflicts in the firm and as noted above; these are not usually connected to any particular culture. They are related more or less to different personalities or characters. This common identity characterises Prometheus employees interviewed in six different agencies in Europe.

In other words, Prometheus promotes behaviour that leads to goal congruence. It aims to obtain a maximum cooperation in teams, by respecting all differences. This approach seeks to integrate employees into a global system (Note 5). It is transmitted to the staff through organisational learning (Argyris & Schön, 1978) and through groups (Mayo, 1933) which have an important role in identification, learning and control. *"Working in teams is important, because it allows sharing the same information; it binds everybody to contribute to the team performance in order to obtain the same result; it functions through common objectives that all members must obtain"*, Human Resources director in Luxembourg. According to Brechet (1997), workers, individuals and groups, learn through organisational learning, they create and maintain new models and behaviours with their affective, cognitive and relational components. Our empirical study shows that a common behaviour can become also a source of motivation for employees and can contribute to cooperation in teams – to cooperate is a way of being recognised as a member of a group (Tyler, 1999; Dubar, 2000). In other words, once cultural differences are respected and well integrated to the system, the cultural factor is an accelerator for cooperation. *"Actually, when you come into contact daily with individuals representing different nationalities, it is a permanent work of research on yourself. […] Employees working in this kind of multicultural environment, develop their openness to differences, accepting more easily for example introduction of new materials for work, new projects, new types of management and above all are capable of changes inside our organisation"*, Human Resources director in Luxembourg.

## 5. Conclusion

There are few studies of the cooperation process in multicultural organisations. This paper examines the interpersonal cooperation process in a multicultural working environment through an inter-site case study. It is based

on an empirical cooperation model validated in a mono-cultural company, it seeks to explore in what extent this model can be applied to an international company.

Our study shows that in the case of Prometheus the interpersonal cooperation process is founded on the factor of a common identity and therefore can be explained in terms of the second dimension of the cooperation model by communal cooperation. The five multicultural work groups studied demonstrate a high level of cooperation despite their differences in intensity of interactions, group management and conflict management. The end result corresponds to a common identity that is developed and preserved in the company through efficient Human Resources Management. By respecting all cultural differences, goal congruence is privileged. Our study extends previous research on the interpersonal cooperation process because it underlines the primary role of the identification factor in interpersonal cooperation between multicultural employees. Therefore, it seems clear that cultural diversity in work groups influences cooperation between members by intensifying the role of the social identification dimension.

Broadly, this study provides an example of interpersonal cooperation in an international context that practitioners can apply in diverse work groups. In particular, managers and members of international teams can take comfort in knowing that a favourable perception of diversity and the recognition of others facilitates integration and increases the satisfaction of multicultural employees in a company. Therefore, there is also a basis for expecting less conflict situations in a company founded on cultural differences. For this, the role of the HRM policies developing common values is important and maintains interpersonal cooperation in the multicultural organisation. Anticipating such a possibility in international organisations helps managing cultural differences successfully.

Due to the scale of the study it would be difficult to generalise our theoretical and managerial findings. Further research should be conducted to determine if our conclusions are valid in wider context. A further point concerning future research is that it would be necessary to enlarge the study beyond Europe to see if our conclusions can cover the whole Prometheus organisation in America, Asia and the Middle East, because our actual conclusions are based on Prometheus' European agencies. What would be the results if the rest of the world was included? Would the influence of other cultures change the global human resources management attitude of Prometheus, or could we still conclude on the efficiency of Prometheus management process and its tools. In the longer term, it would be possible also to examine if some of the Prometheus management tools and practices can be transferred to other international companies.

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**Notes**

Note 1. This conception of human behaviour is also defended by Emile Durkheim. For Durkheim a human being is a passive *homo sociologicus;* his behaviour is a consequence of social reasons. See also Raymond Boudon in «*La logique du social*» where this author proposes a similar discussion.

Note 2. The real name of the company will not be revealed in order to preserve confidentiality.

Note 3. The Global Human Resources Director from London, responsible for three continents, of British nationality; the Director for the Paris agency, of French nationality and the Director for the Luxembourg agency, also of French nationality.

Note 4. The conflict management policy is very clear for the managers; they have to know their team members and manage them (as stated by the Global Human Resources Director from headquarters in London).

Note 5. For Adler (1983), this kind of organisation is called "synergistic organisation". It recognises cultural differences and their consequences.

Table 1. Questionnaires

For our interviews with different employees working in these five different multicultural work groups, we established a questionnaire containing questions on:

(1) work organisation in multicultural teams;
(2) perception of culture in teams;
(3) exchanges and communication between team members, extra professional activities;
(4) conflicts between team members;
(5) employees' involvement in their working environment.

While meeting Human Resources directors, a variant questionnaire were introduced containing questions on:

(1) staff management;
(2) work organisation in Prometheus;
(3) cultural factor in the company;
(4) management policies in respect of the multicultural workforce (recruitment; training, etc.). The aim of these interviews was to understand the role of the HRM function in the management of the company.

Table 2. Multicultural work group interactions

| Teams | Team management | Exchanges | Conflicts | Perception of multicultural work environment | Consequences |
|---|---|---|---|---|---|
| **Team 1** | Participative team management and the proximity of the team manager | Team cohesion and stable team work | Minor conflicts or none | Favourable perception of diversity; Favourable recognition of others | Facility in integration; Recognition of others; Overall satisfaction and motivation |
| **Teams 2 and 5** | Remote management by supervising managers | Mobile employees/engineers working in the field | Many absences from office and less meetings between colleagues | Favourable perception of diversity; Favourable recognition of others | Facility in integration; Recognition of others; Overall satisfaction and motivation |
| **Team 3** | Remote management by mutual adjustment (and team building) | Social relationship characterized by distance | Yes, but these can be managed and they do not disturb cooperation | Favourable perception of diversity; Favourable recognition of others | Facility in integration; Recognition of others; Overall satisfaction and motivation |
| **Team 4** | Remote management via IT solutions | Social relationship characterized by distance and distant manager; sometimes difficult exchanges | Yes, but can be managed | Favourable perception of diversity; Favourable recognition of others | Facility in integration; Recognition of others; Overall satisfaction and motivation |

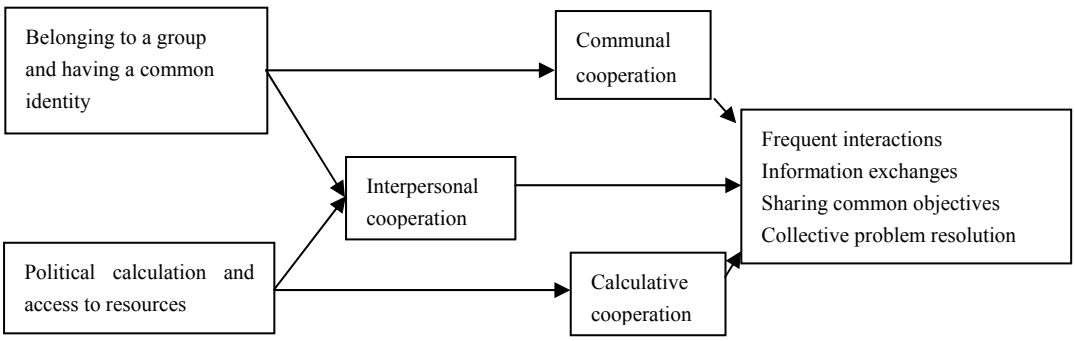


Figure 1. The interpersonal cooperation model in a mono-cultural context

*Source*: Chédotel (2004), Soparnot (2006).

# The Growth Choices of French Listed SMEs

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**Abstract**

Many SMEs suffer from financing problems that hinder their growth. To overcome these difficulties, some list on the stock market and make a public offering. Does this favor the SMEs' growth? And what types of growth do SMEs prefer in this context? The empirical study shows an overall positive development of turnover, especially internationally. SMEs seem to focus on external growth at the expense of internal growth and short-term investment in R&D.

**Keywords**: SME, Stock exchange listing, Internal/external growth, Innovation

## 1. Introduction

The presence of SMEs in the stock market is quite rare. Yet listing generates a spiral of growth. From 686 listed companies on Euronext (B & C) and Alternext, 127 are SMEs. These companies have a growth rate of sales and total assets higher than their unlisted counterparts. They have 50% more chance to be ranked in the largest size class. The most successful of them outperform unlisted firms in terms of profitability and growth rate (Bank of France, 2010). This leads to strong interest from the political powers. This is especially true as SMEs constitute 99% of the economic fabric, create more than 60% of jobs and participate in more than 55% of GDP (Ministry of Economy, Finance and Employment, 2008). This means that issues of SME funding and growth are crucial. In terms of research, there is little work, especially on French cases. St-Pierre and Mathieu (2003) notice a lack of knowledge of the financing needs of SMEs according to their stage of development, their degree of risk and their evolution prospects. Most studies have looked at alternative sources of financing such as venture capital. Others are interested by the upstream financing of the entrepreneurial adventure like the seed capital proposed by incubators, business angels, family contributions and state aid (Pare et al., 2009). Finally, according to the pecking order theory or the model of the life cycle, the IPO remains the last resort of SMEs, after self-financing and bank debt.

The impact of the IPO on the performance has been the subject of multiple investigations into the American (Jain & Kini, 1994; Mikkelson et al., 1997) Asian (Cai & Wei, 1997; Wang, 2005) and European market (Pagano et al., 1998; Sentis, 2001; Coakley et al., 2004; Serve, 2007). Most of these studies find a decline in economic and financial performance (and Mansali Labegorre, 2010). To our knowledge, no study makes clear the impact in terms of strategic behaviour and even less so in the particular case of French SMEs. However, the link between the stock exchange and the performance is not direct, but operates through strategic variables. Indeed, the value theory teaches us that strategic choices, especially in term of growth, are responsible for the variation in performance (Hoareau & Teller, 2001). Thus, the objective of this paper is to shed light on the impact of IPOs on SMEs growth (measured in terms of turnover in France and abroad) and on the related strategic choices that are privileged in this context of listing (internal growth, external growth, investment in innovation technology).

The interest is twofold: from a practical perspective, this article focuses attention on one part of the constellation of SMEs that chose to be listed on the stock exchange market and explores the implications in term of development choices. This is to ensure that the resources generated by the stock market promote the growth of SMEs. From a theoretical viewpoint, this research contributes to the debate on the effectiveness of IPOs, especially for the little explored case of SMEs and introduces strategic growth variables that could potentially explain this evolution.

The article is divided into four parts. The first provides a literature review that justifies the research question, the second describes the methodology used and the last two parts present and analyze the results.

## 2. Growth of Listed SMEs: A Literature Review

The studies on SME growth are unanimous about the importance of financial resources to invest andgrow (Krasniqi, 2007; Oliveira & Fortunato, 2006; Becchetti & Trovato, 2002; Pissarides, 1999) (Note1). Hambrick and Crozier (1985) and Bruton and Prasad (1997) conclude that the first cause which limits the growth of companies is the lack of liquidity (cash deprivation). Indeed, without financial resources, a company cannot invest and improve its production capacity, its sales and market share at the national level, let alone internationally. It cannot recruit or train staff and thus improve managerial capacity, it cannot diversify risk ... In short, without financial resources, the growth trajectory is altered.

Welbourne et al. (1998) introduce the concept of Entrepreneurial Growth Ceiling (EGC). They consider the IPO as a means to generate financial resources and to break, therefore, this growth ceiling, through investment in human resources and R&D. This type of investment, according to the authors, reassures shareholders and financial market authorities, creates shareholder value in the short term and ultimately ensures long-term performance. Blowers et al. (1995) identify the benefits of the IPO and cite specifically the improvement of financial resources to support growth "capital to sustain growth", the opportunities for future funding and the means to grow externally "mergers and acquisitions"... In addition to these financial benefits, the stock exchange increases the fame of SMEs and improves their social capital. They earn prestige and visibility and become financially credible vis-à-vis their partners. The stock exchange therefore supports entrepreneurial activity by developing networks of contacts and conditions of access to external financing, providing growth opportunities for SMEs both in the domestic and foreign market (Ravasi & Marchisio, 2003) (Note 2).

That said, financial resources are not sufficient alone to drive profitable growth. There should be a system of governance that would guide the strategic behavior in this direction.

The agency theory considers the financial market as a control mechanism that would induce managers to make strategic choices in the direction of the traditional value maximization (Jensen, 1993). Indeed, regulators of financial markets undertake to protect shareholders and ensure transparency of information. This is done, in part, through the obligation to publish annual reports and to inform shareholders about the strategies followed and their consequences in terms of value creation. Of course, this governance mechanism doesn't play the same role of control in the case of SMEs, because ownership remains highly concentrated in the hands of the leader, his associates and / or his family and the market is very illiquid, because of the weakness of the transactions. It remains no less true that it requires a minimum number of rules to protect minority shareholders and a high degree of transparency that would undermine the image of SMEs vis-à-vis its partners, in case of mismanagement. Managers must be vigilant in their mode of development and the expenses they incur. They must also comply with the promise of growth displayed. In short, in the context of the "glass house", the managers are not entirely free in their choices. Any strategic decision would be a signal about future prospects and would have a direct impact on shareholder value.

As such, signal theory is very instructive. Its purpose is to explain variations in stock prices through signals from the strategic decisions of managers. They must not only make fair decisions, but also convince the market by positive signals (Vernimmen, 2009). The examples most frequently cited concern the financial strategies: funding policy (Ross, 1977) and distribution (Charest, 1978). Investments in profitable projects are also a signal about future prospects of the company that would involve an appreciation in stock prices (Leland & Pyle, 1977). In the absence of profitable growth, shareholders prefer to sell their shares, reap the liquidity and diversify their investment portfolio in more projects that create value.

Among the strategic levers of value, we can cite the external / internal growth strategies (Hoareau & Teller, 2001; Hirigoyen & Caby, 2001). The contribution of external growth strategies on creating shareholder value is rather negative. Such a strategy could potentially create value if it controlled and strengthened the bargaining power vis-à-vis a partner (customer, supplier, competitor), conquered new market share and mobilized synergies and economies of scale. But overall, it is clear from existing studies that this type of growth, often favored by a simple exchange of securities on the stock market is not creating value for shareholders of the acquiring firm. It especially allows an appreciation of the securities of the target company (Couret & Hirigoyen, 1992; Caby, 1994) and a transfer of wealth in their favor, because of the offered premiums (Roll, 1986; Sudarsanam et al., 1993). Regarding the internal growth, many researchers have demonstrated a positive relationship between the market value of the company and its investment in capital assets (Mc Connel & Muscarella, 1985), in research and development (Copeland et al., 1994; Chan et al., 1992) and generally, in any type of investments with a long-term strategic significance (Woodbridge, 1988).

In summary, this literature review shows that SMEs suffer from financing problems that hinder their growth. The stock exchange could be a solution which facilitates access to financial resources, enhances the reputation, social

capital and thus increases the bargaining power vis-à-vis national or international partners. At the same time, it subjects them to constraints of transparency and to pressures of stock prices that should guide their strategic growth choices toward creating value. In what follows we will attempt to verify these assumptions. Our goal, to recall, is to study the impact of stock exchange listing on the SME growth (measured in terms of turnover) and the strategic choices related to it (preferred modes of growth).

## 3. Methodology

We conducted a longitudinal study, over a period of seven years (Note 3) (three years before listing, the listing year, and three years after) between 1991 and 2001 (Note 4). The study involved 65 listed SMEs and a control sample of similar unlisted SMEs (Note 5) whose turnover is less than 50 million at the date of IPO (Note 6). Such a criterion is inadequate given the variety of industries to which firms belong. Careful attention was paid to each company, given its turnover, its workforce and its branch of industry (see Table 1). The information was collected from the database Diane, CD-pro, and Dafsaliens supplemented by annual reports available in the documentation center of the AMF.

Insert Table 1 Here

The study (Note 7) was conducted in two stages corresponding to the two procedures proposed by Alexander and Charreaux (2004). The first step is used to test the "static evolution" of the growth indicators. This is in order to monitor these indicators on average, before / after listing (longitudinal comparison) and listed / unlisted SMEs (cross-sectional comparison). Parametric tests have been conducted to see if the differences are statistically significant. To better reflect the evolution of indicators over time, we operated the same tests on the extreme years (-3 /+3) -3/0 (pre-listing period) and 0/+3 (post-listing period). That said, the dynamic effect of the stock exchange listing is perceived very imperfectly.

To overcome this deficiency, like Alexander and Charreaux (2004), we felt it necessary to use an econometric model that allows us to take into account the temporal dynamics and to check whether the listing is a significant explanatory variable of the growth, ceteris paribus. For this, the main growth indicators were regressed on 1) the time T (the values from 1 to 7 denoting the seven years). This is to monitor indicators of growth over the 7 years period, 2) a dummy variable reflecting the listing L (equals 1 if the company is listed, 0 otherwise). This variable allows us to verify if the listing is significantly explanatory of growth in a positive or negative sense and 3) a variable TL equal to the product of the variable "time" and the dummy variable "listing". This is the variable that seems most relevant to monitor the dynamics of growth over the years after listing. Finally, to improve the quality of the model, two control variables, common to all businesses, have been introduced: the size and the business cycle. The regression method that we considered most suitable is that of generalized least squares applied to panel data (455 observations). It is used to control the unobserved heterogeneity that is often a source of statistical bias, to correct the heteroscedasticity that appears in the variance-covariance matrix and to identify the observable determinants of differences in behaviors. The regression model is as follows:

$$Gr_{it} = \alpha_i + \beta_{1i} T_{it} + \beta_{2i} L_{it} + \beta_{3i} TL_{it} + \beta_4 size_{it} + \beta_5 cycle_{it} + \varepsilon_{it}$$

$Gr_{it}$ : the growth of firm i in year t

$T_{it}$ : the time for the firm i (value ranging from 1 to 7)

$L_{it}$ : a dummy variable scoring taking the value 1 in year t of listing of the company i, and 0 otherwise

$TL_{it}$ : a variable expressing the interaction of the two previous variables

$size_{it}$ : a control variable, measured by turnover, the firm i in year t

$cycle_{it}$ : the rate of GDP growth in year t for firm i

$\varepsilon_{it}$ : the error term

Regarding growth indicators, we selected like Delmar et al. (2003) and Julien et al. (2006), sales growth as an indicator of organic growth. Boissin et al. (2010) consider this indicator as essential but not sufficient, and propose integrating, among other things, the international dimension. Concerning the growth patterns, we focused attention on the traditional methods of internal and external growth and investment in R&D. The first model corresponds to the definition of "entreprise-patrimoine" in the sense of De Montmorillon (1989): the company grows by acquiring new productive assets, approximated by the ratio (Tangible assets / total fixed assets). The second corresponds to partial or total equity investment in the capital of other firms, for control purposes (Paturel, 1992). We approximate this growth mode by the ratio of financial assets / total fixed assets (Alexander & Charreaux, 2004). Much research demonstrates the advantage of innovation and investment in R&D to stimulate growth (St-Pierre & Mathieu, 2003a). We therefore use the rate of investment in R&D (R&D / total assets) as an indicator of growth through technological

innovation. In addition to these modes of development, we added in the statistical analysis, the overall rate of investment (net fixed assets / Total net balance).

The following table summarizes all the indicators and theoretical or empirical work that helped us to build them:

Insert Table 2 Here

**4. Static Evolutions for Growth Indicators**

Table 1 presents the test results of the first procedure for listed and unlisted SMEs. (Note 8) For each indicator, are mentioned averages of the 65 companies surveyed in the year -3 (the third year before listing), 0 (the year of listing), 3 (third year after listing) and the average of three years before and after listing. The following columns indicate the mean difference tests. These tests verify whether the difference is significant or not.

Insert Table 3 Here (Note 9)

Regarding growth indicators, we find a variation of sales still positive on average in years -3, 0, +3 and averages before and after listing. This means that there is a growth in turnover over the 7 years of observations. It remains no less true that this evolution occurs at a decreasing rate. Indeed, we observe the average of growth rate at 54% before listing and only 15% after listing. The difference is statistically significant. We have the same observation when we compare the date of the IPO and the third year after listing. That said, this trend also relates to the control sample, although the differences are not statistically significant. This is probably a general tendency due to the euphoria of the internet bubble that saw an explosion from the year 2000, causing a generalized fall in corporate activity. Faced with this increase in sales with a decreasing rate, the percentage abroad increases significantly by comparing the extreme years (-3 / +3) and the post-listing period. This is far from being confirmed in the control sample: the differences are not significant and have a negative change over the past four years. Listing seems to promote the internationalization of SMEs through financial resources, reputation and the network effects it can generate.

As regards investment policy, listing seems to exert a significant effect on most indicators. Indeed, the global investment rate has increased from -3 to +3; from 0 to +3 and averages before and after listing. This trend is quite opposite in unlisted SMEs. The bulk of investments concern the external growth. The ratio of financial assets / total assets has been significantly increasing from 28% to 51% between the two extreme years (-3 to +3). The trend is reversed for unlisted SMEs. As for tangible assets, the investment decreased significantly in all tests, from 60% to 34%. The trend remains the same for the control sample, although the difference is not significant and lesser magnitude (from 28% to 25%). Finally, the rate of investment on R&D showed a significant decrease in average compared to the situation pre-listing. Conversely, the control sample shows a positive evolution of the rate of investment in R&D, by comparing the extreme years and the upstream period. Listed SMEs seem to be skeptical when faced with this type of investment which is costly and uncertain. They largely favored external growth at the expense of internal growth.

This step has mainly helped us to monitor the evolution of the growth indicators statically, without being able to apply the rule of "all things being equal". Indeed, the differences, even significant, cannot be systematically attributed to the phenomenon of listing. For this reason, the empirical study was extended by an analysis that explains the impact of listing for each company and introduces the "time" variable in a more dynamic perspective.

**5. Dynamic Evolution of Growth Modes in a Listing Context**

Tables 4, 5, 6 present an extract of results obtained for the evolution of growth patterns for listed SMEs (internal/external growth and investment in R&D). To better understand its content, consider the example of Cegedim company for which all coefficients are statistically different from zero. The T coefficient is negative: that means a decline of internal growth and investment in R&D for seven years. The trend is reversed for external growth. The C coefficient, also negative, means a decrease of the indicator of growth and investment in R&D with listing. The positive sign for the external growth reflects a substitution effect between these two growth modes in favor of the external growth. Finally, the signs of the coefficients are reversed for the TC variable. The Cegedim company seems to favor over time after listing, internal growth and investment in technological innovation to the detriment of external growth.

Insert Table 4 Here

Insert Table 5 Here

Insert Table 6 Here

Like Alexander and Charreaux (2004), we assume that the two control variables (size and business cycle), which condition the growth, are common to all businesses. In other words, the impact of these two variables is identical for all firms. Here in this case, the size effect is negative for internal growth and vice versa for acquisitions and

investment in R&D: the larger the company, the lower its need to invest in production capacity. The large size seems to favor external growth and technological innovation. Regarding the economic cycle, it appears that the high rate of GDP incites companies to invest more in internal growth.

For each company, we have estimation for the time and listing variables. It appears that the listing has had a positive effect on investment in technological innovation in 13 cases out of65. This positive effect is only significant for only 3 cases. The negative effects are more meaningful in 52 cases (though not significant). However, the most interesting coefficient is one that reflects the evolution of strategy over time after listing, in a more dynamic perspective: the TC coefficients. They are positive for 48 SMEs but significant for only 2 companies. They are, however, negative and significant in 6 cases. The listing appears to have a negative effect on investment in R&D. This is confirmed in our statistical results. Note also a possible change in trend on a longer horizon, because we spend from 13 positive coefficients for the C variable to 48 for the TC variable. Since its introduction, SME leaders don't encourage the realization of such an investment which is costly and whose recovery time is very slow. This would impact negatively on the immediate results of the company and its share price on the stock market. However, beyond three years of listing, management doesn't preclude the realization of such an investment which is often effective in improving performance. Our results and interpretations that are derived are different from those of Welbourne et al. (1998), cited above.

Regarding the strategy of internal growth, the effect of listing is positive for 28 out of 65 SMEs, but it is positive and significant for only 8 SMEs. The negative effect is more significant in 13 cases and 37 non-significant. The coefficients of the TC variable provide information of a dynamic nature. They are positive in 31 SMEs but are positive and significant in 18 cases. However, they are negative for 34 SMEs and negative and significant for 27 SMEs. Internal growth doesn't seem to be favored in a listing context (both in static and dynamic optical). These results are consistent with results obtained in the framework of the statistical study. This would probably tend towards the destroying of value in view of the work of Mc Connel and Muscarella (1985).

Finally, with regard to external growth, the effect of listing is positive in 40 cases. This effect is significant only in 16 SMEs. However, the negative coefficients are present in 13 non-significant cases and 12 significant cases. This confirms the results of the statistical study: the listing has had a positive effect on the external growth strategy if we compare statically the change in this ratio compared to the situation before listing (risk of error 1%) and in relation to unlisted SMEs. If we consider the dynamic evolution, the TC coefficient is positive in 28 SMEs and significant in 12 cases against 24 negative and significant coefficients. Apparently, most SMEs in our sample, attracted by the possibility to acquire securities by simple exchange of shares, have recourse to external growth after their IPO. Subsequently, this strategy declines over time. Thus, we would be tempted to temper our idea: the listing has had a positive effect on the external growth strategy in a static perspective. The trend reversed with time. It should be remembered that this type of growth strategy is not necessarily a positive signal. Many authors have demonstrated its destructive value effects (Roll, 1986; Hirigoyen & Couret, 1992; Sudarsanam et al., 1993; Caby, 1994). It is especially true that shareholders, having the opportunity to diversify their portfolio, much prefer financial return to growth.

Finally, it appears that SMEs that have been listed in stock exchange market have renounced the basic mode of growth to make more acquisitions. They fear the costly investment of R&D. But the trend seems to be reversed with time. They grow in the international markets and overall they increase their turnover. Growth patterns favored in this listing context are not necessarily creating value, in view of the studies cited above. This could provide some explanations to the decline in performance often found in empirical research.

## 6. Conclusion

SME growth is an important economic issue that mobilizes the interest of political and academic research. One major concern is to understand the obstacles which hinder the growth of SMEs and how to work around them. A recent study by the Bank of France (2010) showed that the presence on the stock market could be a solution that would foster growth momentum, thanks to financial resources and reputation that it can generate. At the same time, numerous studies have demonstrated a rather negative effect on performance (and Mansali Labegorre, 2010; Serve, 2007). Faced with this paradox, we wished to study, on the one hand, the impact of stock exchange listing on the SME growth and to analyze, on the other hand, the growth patterns that SMEs favor in the context of listing. Finally, we were able provide some answers regarding the decline in performance often recognised after listing and therefore make some recommendations on the growth choices that carry value for listed SMEs.

Our research reveals an overall rather positive effect on SME growth: the turnover continues to grow, despite a decreasing rate and the foreign turnover increases proportionally more on average. SMEs seem to focus on international growth. The overall rate of investment is growing on average. The bulk of investment is directed

towards external growth, favored by the presence in the stock exchange market at the expense of internal growth and investment in technological innovation.

In the light of value theories, the financial market seems to guide the growth choices of SMEs in the direction of destroying value. That said, our results should be taken with nuance because the use of comparative statistics and an econometric model with panel data doesn't allow the generalization of results. The presence on the stock market doesn't systematically imply growth for all indicators used and for all SMEs in our sample. SMEs are extremely heterogeneous and don't develop all in the same way nor in the same degree when they are listed on the stock market. This is the general trend which is emerging. It allows us to provide some explanation for declines in performance often found in empirical studies. Further studies, making the connection between these growth choices and performance, need to be done to follow up this work. Similarly, qualitative studies could help us to bring us closer to the reality of SMEs and to understand their growth choices in this new environment.

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**Notes**

Note 1. Quoted by St-Pierre and Fadil (2012).

Note 2. Quoted by St-Pierre and Fadil (2012).

Note 3. We chose this time gap (7 years) for reasons of data availability and homogeneity of backgrounds and economic contexts. We could broaden the horizon for some companies, but the realization of an unbalanced panel in the model induce econometric and interpretation bias. This is especially true until 2001, the economic environment changes from a phase of euphoria of stock market to a crisis phase, which is not without impact on the financial and strategic choices of listed SMEs. Finally, some studies have mobilized quite similar time horizons (Megginson et al., 1994; Charreaux and Alexander, 2004) or shorter (Kim et al., 2002; Wang, 2005; Serve, 2007), without reducing the quality of their modeling and their results.

Note 4. To avoid interpretation bias, we opted for a period of stock market euphoria (Internet bubble) rather than a crisis. In the latter case, reduced growth could be attributed systematically to the crisis context. Conversely, if the company fails to grow in a period of euphoria, we might question the relevance of the IPO decision and its consequences, presumed positive,on the growth of SMEs.

Note 5. To create this sample, we relied on SMEs introduced in 1998 (which constitute almost 45% of our sample). For each company, we sought its "counterpart" unlisted, in the same size (in terms of numbers of employees and turnover) and in the same industry. Diane database allows us to conduct this type of selection by specifying the criteria mentioned.

Note 6. We relied on the definition of the European Commission (January 2005).

Note 7. The same method, with the same data, was been applied by Fadil (2007) for a general analysis of performance.

Note 8. This table and the associated results were extracted and adapted from Fadil (2007).

Note 9. For unlisted SMEs, we selected the horizon (1995-2001) because the majority of SMEs in our sample were introduced in 1998. They are analyzed on the same horizon.

Table 1. Extract from listed SMEs and their key characteristics

| SMEs | Date of IPO (DIPO) | Turnover (K.€) in DIPO | Number of employees in DIPO | Industry | Compartment of Stock Market in DIPO |
|---|---|---|---|---|---|
| AIROX | 1997 | 8481 | 62 | Medical equipment Manufacturing | Marché libre OTC |
| APEM | 1995 | 25423 | 313 | Switch Manufacturing | Second marché |
| ASSYSTEME | 1995 | 21847 | 6 | Management Consulting | Second marché |
| BELVEDERE | 1997 | 21639 | 7 | Food wholesaler | Nouveau Marché |
| BERTHET | 1996 | 19420 | 125 | Glasses Manufacturing | Second marché |
| CEGEDIM | 1995 | 40932 | 294 | Communications and marketing Services. | Second marché |
| CREANET | 1994 | 4962 | 7 | Computers consulting | Marché libre OTC |
| CREATIFS | 1997 | 18852 | 134 | Events services | Second marché |
| CYBERNETIX | 1997 | 27858 | 177 | Automatisme Engineering | Second marché |
| DEBUSCHERE | 1995 | 27013 | 189 | Design | Marché libre OTC |
| DIGIGRAME | 1997 | 9654 | 39 | Manufacturing of compression card of sound. | Second marché |
| DURAN | 1997 | 9853 | 84 | Technical servicesfor cinema and television | Nouveau Marché |
| DYNAFOND | 1994 | 6575 | 44 | Foundryof metals | Marché libre OTC |
| GENERAL INDUS | 1997 | 8975 | 10 | Chemical products wholsaler | Marché libre OTC |
| ICOM INFO | 1996 | 10952 | 46 | Telecommunication and computer consulting | Second marché |
| … | | | | | |
| VERNEY-CARRON | 1998 | 7678 | 97 | Arm manufacturing | Lyon Stock Exchange |
| **Sample distribution/mean** | 1994: 15%; 1995: 8%; 1996: 14%; 1997: 20%; 1998: 43% | Mean: 22377 K€ | Mean: 119 | | Second Marché: 60% Nouveau marché: 20% Marché libre: 20% |

Table 2. Indicators of growth

| Growth Indicators | Growth Mesure | Authors |
|---|---|---|
| Sales growth | St - St-1 / St-1 | Julien et al. (2006) ; Delmar et al. (2003) |
| International growth | International sales (in %) | Boissin et al. (2010) |
| overall rate of investment | net fixed assets / Total net balance | Alexandre et Charreaux (2004) |
| External Growth | Financial assets/total fixed assets | Alexandre et Charreaux (2004) ; Paturel (1992) |
| Internal Growth | Tangible assets/total fixed assets | De Montmorillon (1989) |
| Investment in R&D | R&D/total fixed assets | St-Pierre et Mathieu (2003b) |

Table 3. Testing the effect of listing on the various indicators of growth for SMEs listed and unlisted (longitudinal and transverse comparisons)

| **Indicators for listed SMEs** | **Mean at -3** | **Mean before** | **Mean at 0** | **Mean after** | **Mean at +3** | **test before/after** | **test -3/+3** | **test-3/0** | **test 0/+3** |
|---|---|---|---|---|---|---|---|---|---|
| **Ratios of activities growth** | | | | | | | | | |
| St - S t-1 / St-1 | 0.95 | 0.54 | 0.19 | 0.15 | 0.1 | **-2.10**** | -1.58 | -1.40 | **-2.85***** |
| % of international turnover | 19.11 | 21.56 | 22.25 | 23.54 | 27.27 | 0.82 | **2.72***** | 1.36 | **2.58***** |
| **Ratios of investissement (en %)** | | | | | | | | | |
| Total Investment rate | 26.68 | 25.59 | 25.25 | 31.91 | 33.85 | **3.18***** | **2.82***** | -0.74 | **4.55***** |
| External Growth | 28.06 | 28.11 | 39.77 | 47.61 | 50.96 | **5.61***** | **5.92***** | **3.66***** | **3.64***** |
| Internal Growth | 60.19 | 58.4 | 47.18 | 38.21 | 34.57 | **-6.73***** | **-6.87***** | **-3.72***** | **-4.43***** |
| R&D Investment | 3.34 | 3.15 | 1.74 | 1.01 | 0.98 | **-1.78*** | -1.25 | -0.80 | -1.07 |
| **Indicators for non listed SMEs** | **Mean at 1995** | **Mean before** | **Mean at 1998** | **Mean after** | **Mean at 2001** | **test before/after** | **test 95/01** | **Test 95/98** | **test 98/01** |
| **Ratios of activities growth** | | | | | | | | | |
| St - S t-1 / St-1 | 0.48 | 0.2 | 1.86 | 0.12 | 0.16 | -1.17 | -0.92 | 0.80 | -1.00 |
| % of abroad turnover | 14.65 | 14.99 | 17.53 | 18.54 | 16.29 | 0.73 | 0.49 | 1.47 | -0.45 |
| **Ratios of investissement (en %)** | | | | | | | | | |
| Total Investment rate | 26.22 | 27.14 | 23.00 | 23.58 | 23.78 | **-0.03*** | -0.93 | -1.14 | 0.44 |
| External Growth | 28.22 | 28.68 | 27.11 | 26.21 | 25.63 | -0.93 | -0.88 | -0.23 | -0.46 |
| Internal Growth | 55.35 | 52.49 | 49.29 | 50.91 | 49.64 | -0.60 | -1.31 | -1.63 | 0.08 |
| R&D Investment | 0.30 | 0.75 | 0.62 | 0.25 | 0.55 | **-0.70*** | **0.40*** | **0.66*** | **-0.08*** |

*Note:* * Test rejecting the null hypothesis of the equality of means 10% (** at 5%) (*** 1%).

Table 4. Extract from the test results of the dynamic effect of listing on the investment in R&D

| C | **-0.02** | **-4.59***** | | | | |
|---|---|---|---|---|---|---|
| LSIZE? | **0.006** | **4.69***** | **Adjusted R2** | | **0.31** | |
| CYCLE? | 0.024 | 0.969527 | | | | |
| **SMEs** | **T Coefficient** | **t-Statistic** | **L Coef.** | **t-Statistic** | **TL Coef.** | **t-Statistic** |
| AIROX | -0.01 | -0.34 | -0.00 | -0.07 | 0.00 | 0.10 |
| APEM | **0.03** | **9.58***** | 0.05 | 1.61 | **(-0.04)***** | **-6.22** |
| ASSYSTEME | -0.01 | -1.21 | -0.003 | -0.45 | 0.001 | 0.74 |
| BELVEDERE | -0.00 | -0.74 | -0.005 | -1.02 | 0.00 | 0.83 |
| BERTHET BONDET | -0.00 | -1.38 | -0.004 | -0.76 | 0.001 | 1.07 |
| CEGEDIM | **-0.00** | **(-3.26)***** | -0.003 | -1.41 | **0.001**** | **2.07** |
| CREANET | 0.00 | 1.05 | 0.002 | 0.70 | -0.001 | -1.24 |
| CREATIFS EXPO. | -0.01 | -0.91 | -0.00 | -0.08 | 0.000 | 0.26 |
| CYBERNETIX | -0.00 | -1.14 | -0.002 | -0.25 | 0.001 | 0.50 |
| DEBUSCHERE | -0.01 | -0.91 | -0.003 | -0.28 | 0.001 | 0.46 |
| DIGIGRAME | -0.00 | -0.25 | -0.000 | -0.03 | -0.001 | -0.13 |
| DURAN | -5.81E-05 | -0.08 | -8.96E-05 | -0.01 | -0.001 | -0.20 |
| DYNAFOND | 0.00 | 0.42 | -6.26E-05 | -0.008 | -0.001 | -0.26 |
| GENERAL INDUS. | -0.00 | -0.38 | 0.001 | 0.06 | 0.001 | 0.06 |
| ICOM INFO. | -0.00 | -0.67 | -0.003 | -0.56 | 0.001 | 0.7 |
| … | | | | | | |
| VERNEY-CARRON | -0.008 | -1.59 | -0.018 | -0.41 | 0.007 | 0.84 |

Table 5. Extract from the test results of the dynamic effect of listing on the internal growth

| C | **0.80** | **12.07**$^{***}$ | | | | |
|---|---|---|---|---|---|---|
| LSIZE | **-0.03** | **(-3.00)**$^{***}$ | **Adjusted R2** | | **0,82** | |
| CYCLE | **1.56** | **2.38**$^{***}$ | | | | |
| **SMEs** | **T Coefficient** | **t-Statistic** | **L Coef.** | **t-Statistic** | **TL Coef.** | **t-Statistic** |
| AIROX | **0.03** | **3.33**$^{***}$ | 0.02 | 0.47 | **-0.03** | **(-2.62)**$^{***}$ |
| APEM | **-0.05** | **(-3.41)**$^{***}$ | 0.13 | 0.89 | 0.00 | 0.01 |
| ASSYSTEME | **-0.26** | **(-4.08)**$^{***}$ | -0.30 | -0.51 | **0.21** | **1.71**$^{*}$ |
| BELVEDERE | **-0.27** | **(-5.42)**$^{***}$ | -0.60 | -1.29 | **0.25** | **2.62**$^{***}$ |
| BERTHET BONDET | **-0.11** | **(-4.76)**$^{***}$ | **-0.38** | **(-1.73)**$^{*}$ | **0.10** | **2.33**$^{**}$ |
| CEGEDIM | **-0.17** | **-21.41**$^{***}$ | **-0.39** | **(-7.72)**$^{***}$ | **0.14** | **12.45**$^{***}$ |
| CREANET | -0.04 | -1.18 | **-0.50** | **(-1.63)**$^{*}$ | 0.05 | 0.91 |
| CREATIFS EXPO. | 0.02 | 1.55 | -0.03 | -0.25 | **-0.10** | **(-3.12)**$^{***}$ |
| CYBERNETIX | -0.04 | -1.02 | -0.32 | -0.79 | 0.07 | 0.84 |
| DEBUSCHERE | **0.07** | **2.98**$^{***}$ | 0.31 | 1.38 | **-0.09** | **(-1.95)**$^{**}$ |
| DIGIGRAME | 0.00 | 0.07 | 0.44 | 1.18 | **-0.16** | **(-2.13)**$^{**}$ |
| DURAN | 0.02 | 1.33 | -0.01 | -0.07 | **-0.11** | **(-2.87)**$^{***}$ |
| DYNAFOND | **0.11** | **4.44**$^{***}$ | 0.29 | 1.22 | **-0.12** | **(-2.50)**$^{***}$ |
| GENERAL INDUS. | **0.10** | **1.99**$^{***}$ | 0.30 | 0.59 | **-0.21** | **(-2.03)**$^{**}$ |
| ICOM INFO. | **0.06** | **1.86**$^{***}$ | **1.26** | **4.26**$^{***}$ | **-0.35** | **(-5.65)**$^{***}$ |
| … | | | | | | |
| VERNEY-CARRON | **0.15** | **3.62**$^{***}$ | **0.76** | **1.95**$^{**}$ | **-0.26** | **(-3.19)**$^{***}$ |

Table 6. Extract from the test results of the dynamic effect of listing on the external growth

| C | **-0.03** | **(-4.36)**$^{***}$ | | | | |
|---|---|---|---|---|---|---|
| LSIZE | **0.01** | **5.14**$^{***}$ | **Adjusted R2** | | **0.78** | |
| CYCLE | **-0.11** | **(-1.90)**$^{**}$ | | | | |
| **SMEs** | **T Coefficient** | **t-Statistic** | **L. Coef.** | **t-Statistic** | **TL Coef.** | **t-Statistic** |
| AIROX | **0.01** | **3.70**$^{***}$ | **-0.13** | **(-5.15)**$^{***}$ | **0.03** | **5.59**$^{***}$ |
| APEM | **0.13** | **5.72**$^{***}$ | 0.12 | 0.57 | -0.07 | -1.58 |
| ASSYSTEME | **0.39** | **4.15**$^{***}$ | 0.63 | 0.71 | **-0.34** | **(-1.89)**$^{*}$ |
| BELVEDERE | **0.37** | **4.76**$^{***}$ | 0.95 | 1.30 | **-0.38** | **(-2.54)**$^{***}$ |
| BERTHET BONDET | **0.23** | **9.00**$^{***}$ | **0.69** | **2.85**$^{***}$ | **-0.23** | **(-4.60)**$^{***}$ |
| CEGEDIM | **0.26** | **48.43**$^{***}$ | **0.70** | **17.37**$^{***}$ | **-0.24** | **-26.79**$^{***}$ |
| CREANET | **0.11** | **2.15**$^{**}$ | 0.79 | 1.57 | **-0.20** | **(-1.96)**$^{***}$ |
| CREATIFS EXPO. | **0.09** | **1.69**$^{*}$ | 0.28 | 0.53 | -0.04 | -0.39 |
| CYBERNETIX | **0.12** | **2.23**$^{**}$ | 0.61 | 1.21 | -0.15 | -1.52 |
| DEBUSCHERE | **0.04** | **5.80**$^{***}$ | -0.00 | -0.03 | **-0.03** | **(-2.24)**$^{**}$ |
| DIGIGRAME | **0.09** | **2.74**$^{***}$ | -0.20 | -0.61 | 0.07 | 1.05 |
| DURAN | **0.08** | **2.55**$^{***}$ | 0.41 | 1.37 | -0.04 | -0.70 |
| DYNAFOND | **0.00** | **2.87**$^{***}$ | **-0.03** | **(-2.28)**$^{**}$ | **0.005** | **1.89**$^{*}$ |
| GENERAL INDUS. | 0.01 | 0.30 | -0.41 | -0.81 | 0.14 | 1.39 |
| ICOM INFO. | **0.06** | **2.02**$^{**}$ | **-0.97** | **(-3.35)**$^{***}$ | **0.22** | **3.70**$^{***}$ |
| … | | | | | | |
| VERNEY-CARRON | -0.00 | -0.50 | **-0.45** | **(-2.87)**$^{***}$ | **0.11** | **3.44**$^{***}$ |

# Medium Sized High Tech International Acquisitions: A Longitudinal Perspective (1990-2011)

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**Abstract**

This article examines the various forms and strategical options that are found and employed when merging companies of any size with medium-sized technological companies, with a view to understanding what outcomes are involved. This research paper is based on a sample consisting of 5 738 mergers and acquisitions transactions in the high-tech sector, particularly those involving innovative companies with technological interests. The aim of this research is to show how these strategic manoeuvres operate, using a multi-criteria analysis chart that includes the size of the company, the level of participation, the nature of diversification, the duration of transactions and value ratios. In this way, the research will help to provide better understanding of the characteristics of these technological merger acquisition operations, creating a typology of operations and manoeuvres and correcting some of the beliefs commonly held.

**Keywords:** High-tech, Acquisition strategies, Internationalisation, Diversification

## 1. Introduction

Research into merger acquisitions is regularly investigated by researchers and practitioners, particularly with regard to the challenges, the underlying strategic motivation and the integration policies followed. There are a great many works that examine the lines of development (diversification, vertical integration, specialisation) and strategic process management (decision-making, negotiation, integration within the new body). Nonetheless, although the motivation for mergers of this nature may have been dealt with in academic literature, there are still many questions to be answered concerning the methods and practical conditions involved in this regrouping. This is particularly the case when the features of these newly grouped companies include mismatches of size and information combining to create innovation.

With this in mind, our article examines the various forms and mechanisms of technological mergers between companies of any size and medium-sized targets, in order to understand the practices, methods and outcomes at stake. In our paper, we hope to show how these strategic mergers operate, using a multi-criteria analysis chart that includes the size of the company, the level of participation, the nature of diversification, the duration of transactions and value ratios.

After briefly recapping the topic of our research and the questions it raises (1), we shall present our sample group (2) followed by the main findings from its descriptive analysis (3). We shall then provide a more searching investigation into the methods of "takeover" that are revealed by 5 acquisitions modes. We shall examine whether they are influenced by the size and nature of diversification and look into the link between certain fundamental characteristics of the transactions and the type of diversification sought (4). Our work shows the diversity and complexity of transactions in this beacon sector of the economy. Our approach, based on multiple criteria, helps us to highlight certain specific features that are peculiar to the international diversification of companies, particularly small companies.

## 2. The Challenges of Strategic Mergers in the High-tech Sector

We hardly need to remind ourselves that research and development is a key factor of success, but there are other reasons encouraging businesses to seek partners with whom and thanks to whom they may acquire new intangible assets (know-how, skills). These include costs relating to R&D, the uncertainties linked to technological change and the difficulties in maintaining the expertise in numerous technological fields (Granstrand & Sjolander, 1990). Small and medium-sized enterprises (SMEs) can benefit from an alliance with large companies in a system of complementary strategic nature. This is why a great many works have examined the development of innovative companies in the context of technological mergers with major corporations (Luypaert & Huyghebaert, 2007; De Man & Duysters, 2005; OCDE, 2000). These research works look into the specific nature of strategically interdependent relationships within the framework of mergers, relationships characterised by an appreciation of the organisational differences and by good management of the variety of information. The focus of the researchers is directed particularly at the ability of the firms to transfer resources and competencies between each other. The same applies to the potential in terms of technological integration and innovation (Aslani & Negassi, 2006) and on growth outlooks (Lee et al., 2001). However, these kinds of merger do not happen of their own accord and require specific organisational and operational methods for the duration of the process. Indeed, this process of combining businesses presents methods and constraints that must be observed meticulously in order to define them as accurately as possible. Let us think about the difficulties relating to the importance of sharing information. The situation is all the more sensitive when the knowledge circulated is tacit (Coff, 1999; Cohen & Levinthal, 1990) and the role of the human asset in the process of value creation is made more important (Holms & Schmitz, 1990). Various research papers highlight these very organisational and structural risks associated with this type of merger, taking into account the challenges as well as the mismatch of size and information existing between the companies in question (Puranam et al, 2000; Paruchuri et al., 2006).

Cassiman and Veugelers (2202) put forward the fact that resorting to external growth is part of an approach favouring the acquisition of knowledge, legitimising acquisition in the high-tech field. This phenomenon may be compared with the way a closed innovation system moves to an open innovation system (Chesbrough, 2003). Reference may also be made to the works of Williamson (1975), who proposes an efficient innovation process based on the purchase of small innovative companies by large firms.

Vermeulen and Barkema (2001) suggest that the acquisition of companies is an effective way of making a technological revival and/or ensuring technological diversification whilst at the same time avoiding the traps associated with the renewed use of the fundamental knowledge held by the company initiating the process. In this approach, Capron and Mitchell (1998) have showed that when the acquisition involves a high degree of transfer of knowledge between the target company and the initiator, this creates rapid development of the R&D competencies of the re-formed organisation in addition to accelerating the market launch of new products.

Although many authors (Salant, 1984; Katz & Shapiro, 1986; Inkpen, 2000) highlight the importance of external growth in the field of high-technology, it has to be admitted that to our knowledge there are very few studies helping to quantify this phenomenon. Inkpen's findings (2000) help us to understand this phenomenon in the context of a specific sector (information technology and communication) in which these transactions appear to represent about one fifth of all operations. Furthermore, Granstrand and Sjölander (1990) appear to suggest that these operations mainly involve major companies purchasing smaller target companies. This article therefore aims to fill in a gap in existing literature by looking at medium-sized acquisitions in the high-technology sector.

## 3. Data Collection Procedure and Sample

The data is taken from the SDC Platinum (Thomson Reuters) database that compiles records of acquisition transactions around the world. We have selected share acquisition transactions from the last 20 years (1990-2011) of medium-sized high-tech companies worth between 10 and 500 million euros (market values of total equity recalculated on the base of transaction values).

Transactions were used where the target and the acquirer belonged to a high-tech sector (according to the SDC Platinum database list), giving an initial sample of 16,538 transactions. We then eliminated stock repurchase or capital reduction transactions, bringing the total number of transactions to 7 788 acquisitions.

Finally, we eliminated any transactions for which we did not have criteria relating to the size of the acquirer as well as transactions carried out by companies under any specific form of bankruptcy or receivership proceedings. The final sample was thus brought down to 5 738 acquisitions.

For each transaction, the following data were collected: the announcement date, the date the transaction was completed, the percentage of shares held before the transaction, the percentage held after the transaction in addition to the total value of the transaction in millions of dollars and the relative acquisition premium (calculated using the average market price of the target over the 4 weeks preceding the transaction). For each target and each acquirer, we identified the name of the company, the sector code (SDC codification for the high-technology sectors), the country of origin and the name of the sector (SIC classification). Finally we identified data that were specific to the target (annual turnover and operating income (EBIT) in millions of dollars for the year preceding the transaction) and to the acquirer (value of total equity in millions of dollars).

## 4. General Characteristics of Medium-sized High-tech Acquisitions

Table 1 shows the breakdown of our sample of 5 758medium-sized high-tech acquisition transactions carried out worldwide over the last 20 years. What are the main findings from the statistical processing of our data?

First of all, it may be observed that on average 30% of these High-Tech acquisition transactions also include international diversification. Here, international diversification is measured by comparing the country of origin of the target and the acquirer (code 1 if the countries of origin are different, code 0 if they are the same). This result is in keeping with recent merger-acquisition trends around the world, in which over the last 10 years, cross-border acquisitions have accounted for nearly 36% of transactions (Meier & Schier, 2012). In particular, we find that these acquisition transactions correspond to a form of sectoral diversification (73%), measured by comparing high-tech sector codes held in the SDC Platinum database (code 1 if the sectoral coding is identical). These results contrast with those obtained from more general data indicating a percentage drop in the number of acquisition transactions incorporating sectoral diversification (Lichtenberg, 1992; Montgomery, 1994).

Insert Table 1 Here

Over the period, the average transaction amount is of 86.62 million dollars. There is no significant size difference between the general case and the case in which the acquisition is linked with international diversification (average transaction of 80 million dollars) or sectoral diversification (average transaction of 87 million dollars).

Figure 1 below illustrates development of these transactions in waves, over the period studied. Where the cyclical nature of the development in waves is known of major listed companies (Gugler, 2003; Rhodes-Kropf & Viswanathan, 2004), it is interesting to note that this characteristic is also found here in relation to medium-sized companies. As we are dealing with high-technology companies, it may be observed that the tip of the wave relates to the period 1998-2001, the peak of the internet bubble. We therefore have here concurrence between the wave observed on the market in general and the trends seen in medium-sized acquisitions in high-technology sectors.

Insert Figure 1 Here

Table 2 presents the geographic distribution of these transactions by identifying the acquirer's country of origin. We must highlight the strong domination of the United States in this field, that far exceeds the GDP ratios between the countries. Analysis of the country of origin of the targets (not listed) shows the high correlation between the principle acquirer countries and the principle target countries. The internationalisation associated with these operations is thus very tightly linked to intra-zone transactions and mainly, to intra-OECD transactions.

Insert Table 2 Here

Finally, table 3 presents the principle sectors of origin of the initiating companies. The first 8 acquirer sectors represent almost 90% of the operations (Business Services; Pre-packaged Software; Telecommunications; Electronics and Electronic Equipment; Drugs and Pharmaceuticals; Measuring, Medical and Photographic Equipment and Clocks; Computer and Office Equipment; Communications Equipment).

Insert Table 3 Here

## 5. Main Results

In addition to the general findings with regard to the operation outcomes and the initiators, we hope to decipher the main acquisition methods in the high-technology sector. To this end, we shall examine the various takeover strategies implemented as well as the types of diversification involved.

*5.1 Takeover Strategical Options*

There are several possible takeover strategies. Our results would suggest 5 possible strategical options (figure 2) characterised by the percentage of control before and after the transaction. From our sample we shall then distinguish 5 takeover options: option 1 with direct takeover (one phase) that consists in taking immediate control of the target from zero %; option 2 consisting of a takeover in two phases (takeover of the target after an initial acquisition of holdings); option 3 consisting in an initial acquisition of holdings ; option 4 is a consolidation of the holdings' acquisition without a majority takeover and option 5, unlike 4, consists in consolidating control, possibly to the extent of a 100% takeover of the target.

Insert Figure 2 Here

One of the major characteristics of the high-technology sector appears to be the dominant nature of option 1 that represents over 75% of the situations. The move through an intermediate situation of holdings' acquisition only represents 8% of cases (option 2). Options 3, 4 and 5 represent 6%, 5% and 7% of situations respectively. The most commonly represented case is the movement from 0% to 100% of the target, representing over two-thirds of acquisition transactions of our total sample.

Insert Figure 3 Here

We now propose to make a further breakdown of these takeover methods according to the size of the transactions and the nature of the associated diversification. The size of the transactions is studied here by crossing the size of the target with the size of the acquirer. Figure 4 gives us the breakdown of transactions per size. The target companies have been divided into quartiles, taking as criterion the size of the market value of total equity estimated using transaction values. Thus, 25% of transactions relate to target companies whose value is between 10 million and 26.72 million dollars inclusive. The second quartile involves target companies valued between 26.72 million and 63.9 million dollars inclusive. The third quartile includes transactions up to 162.25 million dollars. The initiating companies (acquirers) have been regrouped taking the same thresholds in order to obtain comparable groups of corporate transactions. Figure 4 below shows all the results. Following this, we have defined two size groups per acquirer and per target, i.e. four configurations of typified acquisitions.

Insert Figure 4 Here

Table 4 presents the results obtained. We note that for small transactions (group 1 of acquirers and group 1 of targets), option 1 is followed practically exclusively (9 cases out of 10). We observe that, in the case of a strategy involving international diversification, this strategy is followed even more so, representing almost 96% of cases. Contrary to this, for very large scale transactions (group 2 of acquirers and group 2 of targets), option 1 only represents 63.6% of cases. Moreover, for this group of transactions, the use of option 1 falls to 55% for cases involving international diversification. These two observations are arguments for differentiated risk management when it comes to international acquisitions. In our sample, the small structures appear to favour management through rigid managerial control involving a total takeover, whereas the larger companies seem to opt for risk management that is more along the lines of financial management.

Insert Table 4 Here

We can also notice that, when small structures (acquirer group 1) are interested in larger targets with a desire for international diversification (target group 2), their behaviour tends to resemble that of the larger entities (acquirer group 2), with only 60% opting for option 1 and wider diversity of the other strategies. Where international diversification appears to play a major role in the methods of risk management for High-Tech acquisitions, sectoral diversification seems to promote "standardisation" of behaviour by reducing the spread of strategies implemented in accordance with size. The paragraph below aims to examine more deeply the impact of the diversification sought (international or sectoral) on the risk management methods of these operations.

*5.2 The Impact of the Diversification Types on the Characteristics of the Operations*

To characterise the operations, we have used the four following assessment criteria: The duration of the acquisition process estimated in number of days between the announcement date and the completion date, the average acquisition premium noted (calculated using the average market price over the 4 weeks preceding the announcement), the ratio, Total Equity Value / Turnover of the target and the ratio, Total Equity Value / Operating Income (EBIT value) of the target.

For each of these criteria, we distinguish the average observed per size group (acquirer/target) and per type of diversification (no diversification, international, sectoral or double diversification). For each average calculated, we specify in italics the number of operations concerned. Finally, for each criterion, the average of the total sample per

size group is given. We compute two t-test statistics. T-test1 is testing mean differences for each size group for a given type of diversification. T-test2 is testing mean differences for each type of diversification for a given size group. Statistical significance levels at 5% and 1% are denoted by (*) and (**) respectively. Table 5a and 5b show the results obtained.

Insert Table 5a Here

The average length of time between the announcement and completion dates is 69.6 days. We can see that this period is shorter in all cases when a large-sized acquirer takes over a small-sized target. Conversely, the period is greatly extended when a small-sized acquirer takes over a large-sized target. International diversification tends to shorten the length of the implementation period, whereas sectoral diversification appears to have no significant effect on this criterion. Here we find another difference between sectoral and international diversification. The shortened time periods may be interpreted in different ways: better upstream preparation of the transaction and/or greater desire to push the takeover through. The average acquisition premium observed is 51.5%. The average control premium worldwide for the period 1999-2011 is around 20% (Meier & Schier, 2012). There is a very great difference observed, reflecting both the size of the transactions and the level of risk associated with the high-technology sector. Moreover, the results obtained show that the combination of technological risk, international risk and risk related to the size of the operators leads to the observation that, in this kind of configuration, there is an average control premium of over 90%. Sectoral diversification is linked to a lower level of risk for small transactions and an average risk level for other transactions. The absence of diversification clearly plays a role of technological risk limitation, except in the case of the smallest transactions.

Insert Table 5b Here

Table 5b present the results of ratios comparing the total equity market value of the targets with their turnover or operating income (EBIT). The average ratio between total equity value and turnover is 22.6, compared with a worldwide average of 1.23 for the period 1999-2011 (Meier & Schier, 2012). Naturally, this reflects the reality of the high-tech sector in which target companies may be re-purchased purely for their technological potential. It should be noted that some results are difficult to interpret because of the extreme sensitivity of this ratio in this particular context (a very low turnover has the effect of mechanically increasing the ratio dramatically). Nevertheless, table 5b highlight the enhanced value of international acquisition transactions, except where small transactions are concerned. The observations may also be interpreted in terms of risk, with the large groups taking more risks on acquisitions with great technological potential, whereas the small structures limit their risk with acquisitions that have a lower value ratio.

## 6. Conclusion

This article shows the diversity of objectives sought, of takeover procedures and of management methods relating to merger acquisitions in the high-technology sector. The operations studied mainly fulfil sectoral and international diversification objectives. We have found that almost all the initiating companies are grouped together in 8 sectors, with the great majority operating in the United States. For two thirds of the cases studied, the operating procedure consists in acquiring directly 100% of the target in one single transaction. For transactions carried out by small structures (acquirers and targets), direct takeover accounts for over 90% of cases and is close to 96% if the objective is international diversification. This tends to shorten the time taken to complete the transaction and leads to greater appreciation of acquisition transactions (except for small transactions). However, where the objective is sectoral diversification, size does not appear to be a discriminating factor. We have also seen high acquisition premiums when the risks linked to technology are combined with internationalisation and small size. In addition, this research again shows the necessity of having a multi-criteria approach in order to obtain better understanding of the complexity of the transactions, particularly when themergers involve large companies and small organisations in the high-technology sector. The research suggests the need for a new analysis chart on the practical forms of these mergers and on the risk relationship.

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Table 1. Medium sized international high tech acquisitions

| | High-Tech Acquisitions (full sample) | | | H/Tech Acquisitions (international diversification) | | | | H/Tech Acquisitions (Sectoral Diversification) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number of High Tech acquisitions | Total Transaction Value (millions $) | Average Transaction Value (millions $) | Number of High Tech acquisitions | % of total High-Tech Acquisitions | Total Transaction Value (millions $) | Average Transaction Value (millions $) | Number of High Tech acquisitions | % of total High-Tech Acquisitions | Total Transaction Value (millions $) | Average Transaction Value (millions $) |
| **1990** | 22 | 1 654.3 | 75.20 | 3 | 13.6% | 221.59 | 73.9 | 16 | 72.7% | 1 372.0 | 85.8 |
| **1991** | 42 | 3 920.3 | 93.34 | 9 | 21.4% | 422.14 | 46.9 | 35 | 83.3% | 3 273.8 | 93.5 |
| **1992** | 44 | 3 009.5 | 68.40 | 6 | 13.6% | 210.15 | 35.0 | 32 | 72.7% | 1 794.6 | 56.1 |
| **1993** | 65 | 3 479.1 | 53.52 | 13 | 20.0% | 720.43 | 55.4 | 56 | 86.2% | 3 025.0 | 54.0 |
| **1994** | 99 | 9 229.7 | 93.23 | 19 | 19.2% | 1 172.61 | 61.7 | 78 | 78.8% | 8 158.7 | 104.6 |
| **1995** | 129 | 11 786.6 | 91.37 | 27 | 20.9% | 2 256.71 | 83.6 | 91 | 70.5% | 8 170.5 | 89.8 |
| **1996** | 177 | 15 458.8 | 87.34 | 47 | 26.6% | 3 879.03 | 82.5 | 142 | 80.2% | 11 975.8 | 84.3 |
| **1997** | 213 | 21 220.0 | 99.62 | 55 | 25.8% | 5 164.19 | 93.9 | 163 | 76.5% | 15 725.4 | 96.5 |
| **1998** | 325 | 26 982.2 | 83.02 | 95 | 29.2% | 7 171.20 | 75.5 | 252 | 77.5% | 20 672.4 | 82.0 |
| **1999** | 439 | 44 119.5 | 100.50 | 114 | 26.0% | 8 819.29 | 77.4 | 340 | 77.4% | 34 587.2 | 101.7 |
| **2000** | 602 | 62 596.1 | 103.98 | 185 | 30.7% | 17 038.55 | 92.1 | 463 | 76.9% | 49 046.9 | 105.9 |
| **2001** | 355 | 30 624.1 | 86.26 | 104 | 29.3% | 9 969.69 | 95.9 | 267 | 75.2% | 23 237.5 | 87.0 |
| **2002** | 266 | 21 221.0 | 79.78 | 76 | 28.6% | 6 120.17 | 80.5 | 200 | 75.2% | 15 841.4 | 79.2 |
| **2003** | 305 | 24 547.1 | 80.48 | 78 | 25.6% | 6 232.10 | 79.9 | 221 | 72.5% | 18 557.9 | 84.0 |
| **2004** | 343 | 30 121.5 | 87.82 | 115 | 33.5% | 9 891.74 | 86.0 | 245 | 71.4% | 21 799.7 | 89.0 |
| **2005** | 394 | 33 646.8 | 85.40 | 136 | 34.5% | 11 383.66 | 83.7 | 283 | 71.8% | 24 306.6 | 85.9 |
| **2006** | 384 | 33 100.2 | 86.20 | 140 | 36.5% | 12 357.97 | 88.3 | 272 | 70.8% | 24 226.5 | 89.1 |
| **2007** | 411 | 36 811.9 | 89.57 | 133 | 32.4% | 11 987.07 | 90.1 | 271 | 65.9% | 23 030.0 | 85.0 |
| **2008** | 350 | 27 943.2 | 79.84 | 124 | 35.4% | 9 953.82 | 80.3 | 248 | 70.9% | 20 206.3 | 81.5 |
| **2009** | 238 | 22 413.9 | 94.18 | 78 | 32.8% | 7 927.48 | 101.6 | 160 | 67.2% | 14 970.8 | 93.6 |
| **2010** | 278 | 26 969.8 | 97.01 | 99 | 35.6% | 8 862.89 | 89.5 | 183 | 65.8% | 18 197.7 | 99.4 |
| **2011** | 257 | 23 019.2 | 89.57 | 82 | 31.9% | 8 307.42 | 101.3 | 180 | 70.0% | 15 878.6 | 88.2 |
| | ***5738*** | | ***86.62*** | ***1738*** | ***30.3%*** | | ***79.77*** | ***4198*** | ***73.2%*** | | ***87.10*** |

Table 2. Acquirer nations of medium sized high-tech acquisitions (1990-2011)

| Acquiror Nation | Number of High-Tech Acquisitions | Total Transaction Value (in millons $) | Average Transaction Value (in millons $) | Acquiror Nation | Number of High-Tech Acquisitions | Total Transaction Value (in | Average Transaction Value (in |
|---|---|---|---|---|---|---|---|
| United States | 3112 | 319 483.3 | 102.7 | Guernsey | 8 | 1 257.7 | 157.2 |
| Japan | 428 | 27 653.5 | 64.6 | Portugal | 8 | 783.6 | 97.9 |
| United Kingdom | 361 | 26 079.1 | 72.2 | Austria | 7 | 642.7 | 91.8 |
| Canada | 176 | 15 452.8 | 87.8 | Turkey | 7 | 488.1 | 69.7 |
| South Korea | 142 | 5 572.9 | 39.2 | Hungary | 6 | 740.2 | 123.4 |
| Germany | 134 | 9 982.5 | 74.5 | Chile | 5 | 267.5 | 53.5 |
| France | 116 | 10 380.4 | 89.5 | Egypt | 4 | 132.2 | 33.1 |
| Sweden | 94 | 7 754.4 | 82.5 | New Zealand | 4 | 140.7 | 35.2 |
| China | 91 | 4 252.8 | 46.7 | Saudi Arabia | 4 | 504.3 | 126.1 |
| India | 87 | 5 605.4 | 64.4 | Slovenia | 4 | 337.1 | 84.3 |
| Australia | 80 | 5 648.7 | 70.6 | Thailand | 4 | 299.6 | 74.9 |
| Hong Kong | 64 | 3 642.7 | 56.9 | Iceland | 3 | 207.0 | 69.0 |
| Taiwan | 64 | 5 083.2 | 79.4 | Malta | 3 | 135.5 | 45.2 |
| Italy | 59 | 3 452.2 | 58.5 | Czech Republic | 2 | 64.2 | 32.1 |
| Brazil | 58 | 4 644.6 | 80.1 | Luxembourg | 2 | 251.2 | 125.6 |
| Russian Fed | 56 | 5 238.4 | 93.5 | Philippines | 2 | 401.9 | 200.9 |
| Netherlands | 54 | 5 547.0 | 102.7 | Utd Arab Em | 2 | 91.0 | 45.5 |
| Norway | 54 | 3 089.1 | 57.2 | Argentina | 1 | 23.7 | 23.7 |
| Singapore | 51 | 4 018.5 | 78.8 | Bahrain | 1 | 415.0 | 415.0 |
| Israel | 48 | 4 618.1 | 96.2 | Bulgaria | 1 | 15.5 | 15.5 |
| Switzerland | 46 | 5 785.6 | 125.8 | Croatia | 1 | 42.3 | 42.3 |
| Finland | 45 | 4 131.5 | 91.8 | Cyprus | 1 | 15.7 | 15.7 |
| South Africa | 34 | 3 438.2 | 101.1 | Estonia | 1 | 74.1 | 74.1 |
| Denmark | 30 | 1 732.6 | 57.8 | Gibraltar | 1 | 157.8 | 157.8 |
| Spain | 27 | 1 912.6 | 70.8 | Isle of Man | 1 | 50.0 | 50.0 |
| Poland | 23 | 1 341.9 | 58.3 | Kuwait | 1 | 34.4 | 34.4 |
| Malaysia | 22 | 1 594.4 | 72.5 | Lithuania | 1 | 179.8 | 179.8 |
| Belgium | 19 | 1 271.9 | 66.9 | Neth Antilles | 1 | 20.5 | 20.5 |
| Ireland-Rep | 19 | 2 139.2 | 112.6 | Oman | 1 | 204.0 | 204.0 |
| Bermuda | 15 | 1 924.3 | 128.3 | Peru | 1 | 12.0 | 12.0 |
| Greece | 13 | 936.7 | 72.1 | Qatar | 1 | 28.6 | 28.6 |
| Mexico | 13 | 1 143.2 | 87.9 | Slovak Rep | 1 | 11.6 | 11.6 |
| Indonesia | 12 | 1 284.0 | 107.0 | Sri Lanka | 1 | 10.0 | 10.0 |

Table 3. Acquirer industry sectors (full sample) 1990-2011

| Acquiror Industry Sector | Number of High Tech acquisitions | Acquiror Industry Sector | Number of High Tech acquisitions |
|---|---|---|---|
| Business Services | 1168 | Amusement and Recreation Services | 12 |
| Prepackaged Software | 1016 | Transportation and Shipping (except air) | 11 |
| Telecommunications | 597 | Holding Companies, Except Banks | 9 |
| Electronic and Electrical Equipment | 591 | Rubber and Miscellaneous Plastic Products | 9 |
| Drugs | 577 | Miscellaneous Manufacturing | 8 |
| Measuring, Medical, Photo Equipment; Clocks | 522 | Construction Firms | 8 |
| Computer and Office Equipment | 340 | Retail Trade-Home Furnishings | 7 |
| Communications Equipment | 263 | Educational Services | 6 |
| Radio and Television Broadcasting Stations | 92 | Credit Institutions | 4 |
| Health Services | 77 | Electric, Gas, and Water Distribution | 3 |
| Wholesale Trade-Durable Goods | 56 | Real Estate; Mortgage Bankers and Brokers | 3 |
| Machinery | 50 | Oil and Gas; Petroleum Refining | 3 |
| Metal and Metal Products | 46 | Stone, Clay, Glass, and Concrete Products | 3 |
| Miscellaneous Retail Trade | 42 | Food and Kindred Products | 3 |
| Investment & Commodity Firms,Dealers,Exchanges | 37 | Soaps, Cosmetics, and Personal-Care Products | 2 |
| Printing, Publishing, and Allied Services | 33 | Agriculture, Forestry, and Fishing | 2 |
| Advertising Services | 26 | Leather and Leather Products | 2 |
| Aerospace and Aircraft | 22 | Textile and Apparel Products | 2 |
| Chemicals and Allied Products | 21 | Wood Products, Furniture, and Fixtures | 2 |
| Motion Picture Production and Distribution | 16 | Other Financial | 1 |
| Transportation Equipment | 16 | Commercial Banks, Bank Holding Companies | 1 |
| Insurance | 15 | Public Administration | 1 |
| Wholesale Trade-Nondurable Goods | 13 | **TOTAL** | **5738** |

Table 4. Strategicaloptions according to the size and nature of diversification

**No diversification**

| *Acquiror=* | Group 1 | Group 1 | Group 2 | Group 2 |
|---|---|---|---|---|
| *Target=* | Group 1 | Group 2 | Group 1 | Group 2 |
| Option 1 | 94.0% | 74.6% | 80.7% | 68.2% |
| Option 2 | 2.8% | 4.2% | 10.7% | 6.6% |
| Option 3 | 0.9% | 7.0% | 0.9% | 6.1% |
| Option 4 | 1.4% | 8.5% | 1.5% | 6.4% |
| Option 5 | 0.9% | 5.6% | 6.1% | 12.7% |
| | **100.0%** | **100.0%** | **100.0%** | **100.0%** |

**International diversification**

| *Acquiror=* | Group 1 | Group 1 | Group 2 | Group 2 |
|---|---|---|---|---|
| *Target=* | Group 1 | Group 2 | Group 1 | Group 2 |
| Option 1 | 95.7% | 60.6% | 74.7% | 55.1% |
| Option 2 | 1.4% | 6.1% | 14.0% | 12.3% |
| Option 3 | 1.4% | 12.1% | 4.7% | 13.1% |
| Option 4 | 1.4% | 12.1% | 2.0% | 7.2% |
| Option 5 | 0.0% | 9.1% | 4.7% | 12.3% |
| | **100.0%** | **100.0%** | **100.0%** | **100.0%** |

**Sectoral diversification**

| *Acquiror=* | Group 1 | Group 1 | Group 2 | Group 2 |
|---|---|---|---|---|
| *Target=* | Group 1 | Group 2 | Group 1 | Group 2 |
| Option 1 | 87.7% | 75.1% | 84.4% | 67.0% |
| Option 2 | 7.3% | 4.3% | 6.4% | 8.2% |
| Option 3 | 1.6% | 5.9% | 2.9% | 8.2% |
| Option 4 | 1.8% | 8.1% | 1.6% | 7.9% |
| Option 5 | 1.6% | 6.5% | 4.7% | 8.6% |
| | **100.0%** | **100.0%** | **100.0%** | **100.0%** |

**Double diversification**

| *Acquiror=* | Group 1 | Group 1 | Group 2 | Group 2 |
|---|---|---|---|---|
| *Target=* | Group 1 | Group 2 | Group 1 | Group 2 |
| Option 1 | 91.1% | 81.8% | 84.0% | 56.1% |
| Option 2 | 3.8% | 7.3% | 8.5% | 11.6% |
| Option 3 | 1.4% | 5.5% | 4.3% | 14.4% |
| Option 4 | 0.5% | 1.8% | 0.5% | 8.3% |
| Option 5 | 3.3% | 3.6% | 2.7% | 9.7% |
| | **100.0%** | **100.0%** | **100.0%** | **100.0%** |

**Full sample**

| *Acquiror=* | Group 1 | Group 1 | Group 2 | Group 2 |
|---|---|---|---|---|
| *Target=* | Group 1 | Group 2 | Group 1 | Group 2 |
| Option 1 | 90.2% | 74.7% | 82.8% | 63.6% |
| Option 2 | 5.3% | 4.9% | 8.3% | 9.1% |
| Option 3 | 1.4% | 6.7% | 3.0% | 9.7% |
| Option 4 | 1.4% | 7.6% | 1.4% | 7.7% |
| Option 5 | 1.7% | 6.1% | 4.5% | 9.9% |
| | **100.0%** | **100.0%** | **100.0%** | **100.0%** |

Table 5a. Diversification types versus acquisitions characteristics (length of acquisition process / average premium paid)

| | All groups | | Acquiror = Group 1 Target = Group 1 | | | Acquiror = Group 1 Target = Group 2 | | | Acquiror = Group 2 Target = Group 1 | | | Acquiror = Group 2 Target = Group 2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *N* | Mean | *N* | *St. Dev* | Mean | *N* | *St. Dev* | Mean | *N* | *St. Dev* | Mean | *N* | *St. Dev* | Mean |
| **A. Length of acquisition process (number of days between annoucement and completion dates)** | | | | | | | | | | | | | | |
| **Full sample** | *5 737* | **69.6** | *1 060* | ***103.1*** | **70.5** | *344* | ***135.3*** | **84.0** | *1 726* | ***113.4*** | **53.4** | *2 607* | ***104.1*** | **78.2** |
| *(t-test1)* | | | | | *0.25* | | | *1.96* (*) | | | *-5.94* (**) | | | *4.18* (**) |
| **No diversification** | *1 051* | **73.7** | *215* | ***113.2*** | **77.2** | *71* | ***89.9*** | **84.7** | *326* | ***76.4*** | **52.7** | *439* | ***115.4*** | **85.8** |
| *(t-test1)* | | | | | *0.46* | | | *1.03* | | | *-4.97* (**) | | | *2.20* (*) |
| *(t-test2)* | | | | | *0.88* | | | *0.07* | | | *-0.19* | | | *1.38* |
| **International diversification** | *488* | **56.8** | *69* | ***63.3*** | **45.7** | *33* | ***107.5*** | **79.2** | *150* | ***59.3*** | **37.3** | *236* | ***94.5*** | **69.3** |
| *(t-test1)* | | | | | *-1.46* | | | *1.20* | | | *-4.03* (**) | | | *2.03* (*) |
| *(t-test2)* | | | | | *-3.25* (**) | | | *-0.25* | | | *-3.33* (**) | | | *-1.44* |
| **Sectoral diversficiation** | *2 948* | **73.1** | *563* | ***106.1*** | **74.8** | *185* | ***160.8*** | **84.1** | *874* | ***115.7*** | **58.8** | *1 326* | ***101.0*** | **80.2** |
| *(t-test1)* | | | | | *0.37* | | | *0.93* | | | *-3.65* (**) | | | *2.58* (**) |
| *(t-test2)* | | | | | *0.96* | | | *0.01* | | | *1.37* | | | *0.75* |
| **Double diversification** | *1 250* | **63.2** | *213* | ***92.9*** | **60.2** | *55* | ***103.9*** | **85.4** | *376* | ***146.0*** | **48.1** | *606* | ***105.1*** | **71.6** |
| *(t-test1)* | | | | | *-0.46* | | | *1.59* | | | *-2.01* (*) | | | *1.96* (*) |
| *(t-test2)* | | | | | *-1.60* | | | *0.10* | | | *-0.71* | | | *-1.54* |
| **B. Average Premium Paid (4 weeks prior to announcement date)** | | | | | | | | | | | | | | |
| **Full sample** | *4 166* | **51.3%** | *889* | ***54.5%*** | **58.3%** | *242* | 37.0% | **44.7%** | *1429* | 46.0% | **55.5%** | *1606* | 47.1% | **44.6%** (**) |
| *(t-test1)* | | | | | *3.84* (**) | | | *-2.77* (**) | | | *3.45* (**) | | | *-5.66* |
| **No diversification** | *778* | **48.1%** | *178* | ***60.9%*** | **86.1%** | *47* | 27.9% | **23.0%** | *268* | 26.8% | **39.2%** | *285* | 30.8% | **36.9%** (**) |
| *(t-test1)* | | | | | *8.32* (**) | | | *-6.17* (**) | | | *-5.43* (**) | | | *-6.14* (**) |
| *(t-test2)* | | | | | *6.08* (**) | | | *-5.33* (**) | | | *-9.94* (**) | | | *-4.24* |
| **International diversification** | *399* | **61.6%** | *64* | ***34.9%*** | **90.7%** | *26* | 30.4% | **51.8%** | *134* | 34.2% | **52.7%** | *175* | 41.5% | **59.3%** |
| *(t-test1)* | | | | | *6.67* (**) | | | *-1.65* | | | *-3.04* (**) | | | *-0.74* (**) |
| *(t-test2)* | | | | | *7.43* (**) | | | *1.19* | | | *-0.96* | | | *4.67* |
| **Sectoral diversficiation** | *2 027* | **49.2%** | *459* | ***61.8%*** | **48.1%** | *127* | 41.4% | **49.2%** | *699* | 51.6% | **55.6%** | *742* | 54.8% | **43.9%** (**) |
| *(t-test1)* | | | | | *-0.39* | | | *0.00* | | | *3.26* (**) | | | *-2.63* |
| *(t-test2)* | | | | | *-3.55* (**) | | | *1.23* | | | *0.04* | | | *-0.36* |
| **Double diversification** | *962* | **59.2%** | *188* | ***23.4%*** | **53.4%** | *42* | 35.1% | **60.7%** | *328* | 49.6% | **75.8%** | *404* | 39.6% | **48.3%** (**) |
| *(t-test1)* | | | | | *-3.42* (**) | | | *0.28* | | | *6.07* (**) | | | *-5.54* |
| *(t-test2)* | | | | | *-2.91* (**) | | | *2.95* (**) | | | *7.41* (**) | | | *1.83* |

Table 5b. Diversification types versus acquisitionvaluation ratios

| | All groups | | Acquiror = Group 1 Target = Group 1 | | | Acquiror = Group 1 Target = Group 2 | | | Acquiror = Group 2 Target = Group 1 | | | Acquiror = Group 2 Target = Group 2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | N | St. Dev | Mean | N | St. Dev | Mean | N | St. Dev | Mean | N | St. Dev | Mean |
| **C. Targe Market value of Equity to Sales ratio** | | | | | | | | | | | | | | |
| **Full sample** | *5 731* | **22.6** | *1 060* | 89.7 | **14.5** | *342* | 141.7 | **35.8** | *1 725* | 101.3 | **10.6** | *2 604* | 316.2 | **32.1** |
| *(t-test1)* | | | | | *-2.94* (**) | | | *1.72* | | | *-4.91* (**) | | | *1.53* |
| **No diversification** | *1 049* | **20.2** | *215* | 41.1 | **12.5** | *71* | 132.6 | **52.9** | *325* | 48.3 | **10.6** | *438* | 224.6 | **25.8** |
| *(t-test1)* | | | | | *-2.75* (**) | | | *2.08* (*) | | | *-3.57* (**) | | | *0.52* |
| *(t-test2)* | | | | | *-0.73* | | | *1.09* | | | *-0.01* | | | *-0.59* |
| **International diversification** | *486* | **33.4** | *69* | 246.8 | **54.1** | *32* | 161.8 | **62.1** | *150* | 69.8 | **17.0** | *235* | 183.0 | **34.0** |
| *(t-test1)* | | | | | *0.70* | | | *1.00* | | | *-2.89* (**) | | | *0.05* |
| *(t-test2)* | | | | | *1.33* | | | *0.92* | | | *1.11* | | | *0.16* |
| **Sectoral diversficiation** | *2 946* | **18.2** | *563* | 52.0 | **9.5** | *184* | 62.6 | **17.3** | *874* | 130.0 | **11.6** | *1 325* | 229.7 | **26.3** |
| *(t-test1)* | | | | | *-3.97* (**) | | | *-0.19* | | | *-1.50* | | | *1.29* |
| *(t-test2)* | | | | | *-2.30* (*) | | | *-4.02* (**) | | | *0.21* | | | *-0.92* |
| **Double diversification** | *1 250* | **34.0** | *213* | 145.0 | **24.4** | *55* | 330.4 | **79.8** | *376* | 19.5 | **5.5** | *606* | 529.2 | **50.8** |
| *(t-test1)* | | | | | *-0.96* | | | *1.03* | | | *-28.35* (**) | | | *0.79* |
| *(t-test2)* | | | | | *0.99* | | | *0.99* | | | *-5.13* (**) | | | *0.87* |
| **D. Target market value of Equity to EBIT ratio** | | | | | | | | | | | | | | |
| **Full sample** | *5 738* | **66.2** | *1 060* | 344.3 | **81.1** | *344* | 106.1 | **54.6** | *1 726* | 324.6 | **70.8** | *2 608* | 273.8 | **58.7** |
| *(t-test1)* | | | | | *1.40* | | | *-2.02* (*) | | | *0.59* | | | *-1.41* |
| **No diversification** | *1 052* | **65.4** | *215* | 47.8 | **33.7** | *71* | 31.3 | **34.2** | *326* | 526.5 | **125.2** | *440* | 69.5 | **41.6** |
| *(t-test1)* | | | | | *-9.71* (**) | | | *-8.42* (**) | | | *2.05* (*) | | | *-7.18* (**) |
| *(t-test2)* | | | | | *-14.52* (**) | | | *-5.52* (**) | | | *1.87* | | | *-5.16* (**) |
| **International diversification** | *488* | **142.7** | *69* | 15.1 | **25.4** | *33* | 47.5 | **51.4** | *150* | 511.5 | **172.4** | *236* | 773.4 | **170.9** |
| *(t-test1)* | | | | | *-64.74* (**) | | | *-11.05* (**) | | | *0.71* | | | *0.56* |
| *(t-test2)* | | | | | *-30.72* (**) | | | *-0.39* | | | *2.43* (*) | | | *2.23* (*) |
| **Sectoral diversficiation** | *2 948* | **57.0** | *563* | 420.5 | **99.2** | *185* | 54.8 | **48.9** | *874* | 269.7 | **54.9** | *1 326* | 71.1 | **41.7** |
| *(t-test1)* | | | | | *2.38* (*) | | | *-2.02* (*) | | | *-0.24* | | | *-7.86* (**) |
| *(t-test2)* | | | | | *1.02* | | | *-1.42* | | | *-1.75* | | | *-8.70* (**) |
| **Double diversification** | *1 250* | **72.8** | *213* | 273.0 | **94.6** | *55* | 269.3 | **123.2** | *376* | 64.8 | **38.4** | *606* | 385.6 | **81.9** |
| *(t-test1)* | | | | | *1.16* | | | *1.39* | | | *-10.30* (**) | | | *0.58* |
| *(t-test2)* | | | | | *0.72* | | | *1.89* | | | *-9.70* (**) | | | *1.49* |

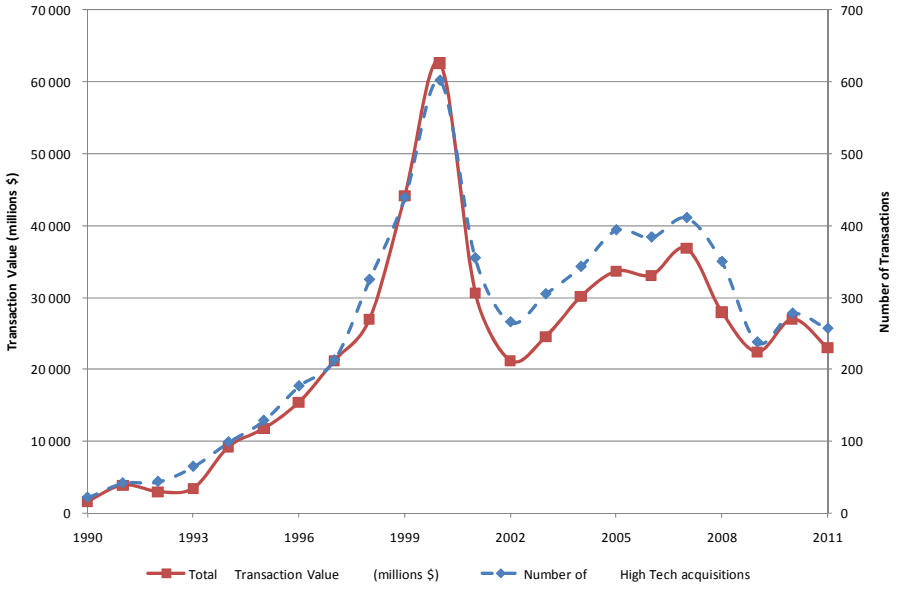


Figure 1. Medium-sized High tech acquisitions waves

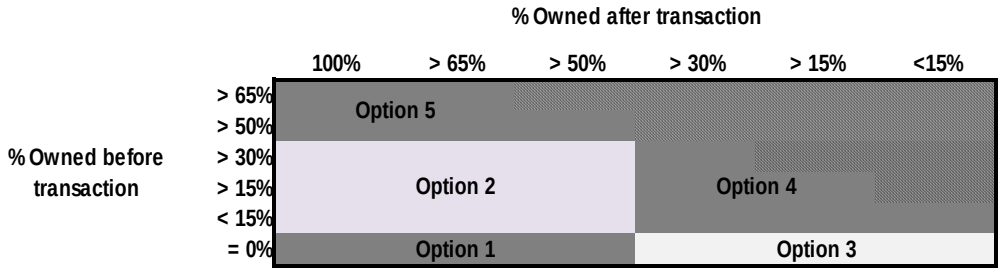


Figure 2. The 5 strategical options in high tech acquisition

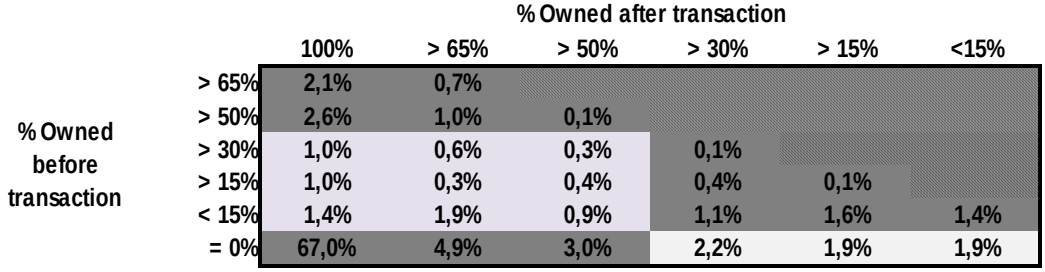


Figure 3. The 5 strategical options: medium-sized high-tech acquisition cases (1990-2011)

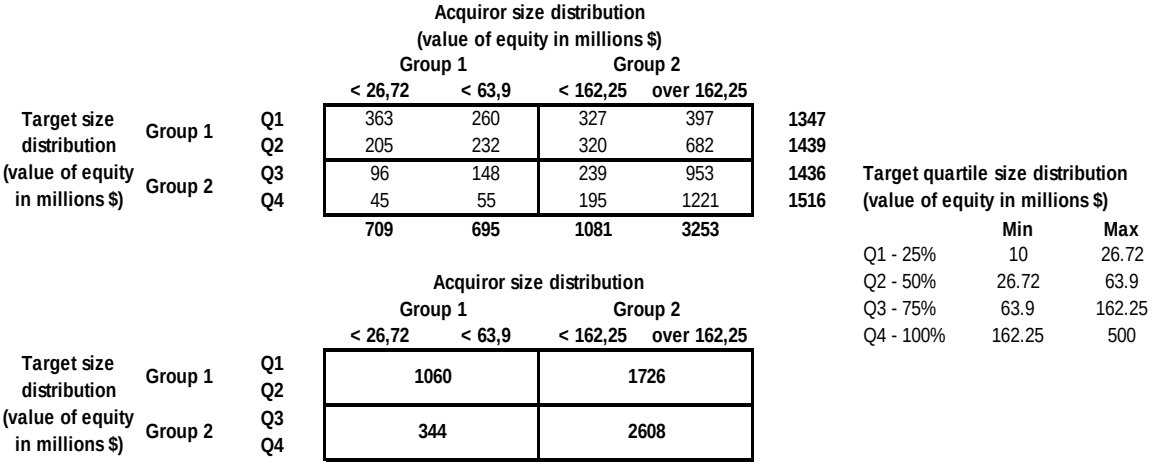


Figure 4. Distribution of transactions per size and per size "group"

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# How to Emerge from the Crisis and from Crisis: Lessons Learned from a European Survey

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**Abstract**

The authors would like to sincerely thank Mercuri Urval, which funded and spearheaded this European study. The talents of the firm's managers were invaluable to compiling a robust study, filled with lessons. This fascinating collaborative work demonstrates how much management culture is enriched by juxtaposing academic knowledge and experience on the ground.

**Keywords**: Crisis management, International management, Innovation

## 1. Introduction

Situations of economic or financial crisis are not exceptional phenomena in the history of a country or company. Observers have learned to make connections between several factors characterizing a crisis (Commission of the European Commities, 2008; Cole & Ohanian, 2009). Seizure, in the mechanical meaning of the term, constitutes the first factor. This concerns situations where certain nuts and bolts in the economy cease to function and do not appear capable of restarting. The second factor concerns an *a posteriori* observation of far-reaching and long-term malfunctions. Thirdly, a crisis exists whenever it may be observed that market segments are unable to correct themselves, or that such correction time is excessively long and the correction itself far from perfect. Readily localisable and identifiable market failures are, in fact, what constitute the fourth characteristic of a crisis. Finally, there is a crisis whenever the solution to a largely deteriorated situation involves structural changes (calling the system into question) and when government intervention is necessary.

When we analyse these various factors, we are compelled to observe that the situation we have been witnessing since summer 2007 is indeed that of a major crisis (Elmendorf, 2009). Aside from its intrinsic depth, this crisis is characterised by both contagion and contamination phenomena. Contagion occurs when difficulties in a country's financial sector spread to the same sector in one or more other countries. We may also speak of contagion when the

difficulties in one financial sector result in weaknesses in other financial sectors (we might just as easily speak of systemic risk). Contamination, on the other hand, occurs when the financial crisis spreads from the financial sector to the real sector. We are well aware that we are currently in the presence of both contagion and contamination. Thus, it is not simply the international financial system that is affected, but also all corporations, in their strategies, in their operations and in all aspects of their management.

Although the path has been bumpy at times, especially with the bursting of the bubble in the electronic sector in 2000, the last 2 decades have been years of sustained growth in industrialized countries and of spectacular growth in a number of emerging countries. The current crisis marks the end of this 20-year cycle. The genuine euphoria that had gripped some economies (the American, British and Spanish economies, for example) is now giving way to a far-reaching crisis. Very few studies have directly focused on competitive strategies in industries in crisis. Management studies define the notion of crisis as a situation that threatens the functioning, objectives and values of an organisation (Hermann, 1963) and that leads to the formulation of new managerial practices. The exceptional nature of the crisis, in effect, implies strong uncertainty (Milburn, Schuler & Watman, 1983) and raises the issue of a need to reconfigure resources and the role of the manager, due to the necessarily shortened time between decision-making and action. From this standpoint, any crisis will endanger the operating framework of a given company and put its reputation and that of its manager on the line (Libaert, 2001); it will imply choices, changes in attitude, decisive actions and, generally, the development of specific capabilities and procedures in order to eliminate the insecurity. It may also generate stronger emotional pressures, rendering communication and relationships with others more sensitive.

Crisis phenomena firstly manifest as a lack of visibility with anxiogenic consequences for economic players (Crossan, Cunha, Vera & Cunha, 2005). The effective complexity of the crisis is a factor that can lead to anxiety and misunderstanding; hence, crises sometimes lead managers to deliver a simplified interpretation of their complexity to enable their teams to identify and take on board key problems without spreading themselves too thinly. The complexity of the situation, the uncertainty, the fear of the unknown and the lack of visibility trigger a sort of survival reflex in managers, especially those in large organisations. Managers often have their own ideas on how to deal with the crisis, but dare not suggest, or even implement them (Adrot & Garreau, 2010). It is important to leave room for "unconventional" ideas. We can cite the example of a large company whose managers had rejected a project involving a unique co-operative solution, with a highly transparent operating method. However, they subsequently invited the project's creator to a management board meeting for further discussions about the project and today, amid the current crisis, the project is under closer scrutiny and may indeed be implemented. So how do you instil confidence in your employees when, as a manager, you lack sufficient visibility to see clearly into the future? This is the fourth key to success in crisis leadership: the ability to be consistent, both in decision-making and in the attitudes adopted in a crisis context - intrinsic consistency in what you do, say and decide. Such consistency engenders confidence, and gives employees the feeling that their manager has a map to help him navigate and stay on course in a turbulent and uncertain climate. Displaying consistency means rendering work processes visible, clearly announcing the main milestones on the horizon since the future is uncertain, taking an active interest in field feedback and taking the time to truly listen to your employees (Besson & Lavorata, 2010).

Finally, in periods where uncertainty reigns, the difference between success and failure often lies in the company's ability to deviate from the more cautious cost rationalisation approach in order to take entrepreneurial measures, develop market share and improve results (Duquesnois, Le Roy & Gurau, 2010). In a recovery context, the situation facing companies who have adopted the first approach, i.e. the wait-and-see policy, is at best identical to their initial status. Conversely, those who opt for the second, i.e. the innovative approach, gain a competitive edge and post positive long-term results. The growing economic difficulties and financial constraints mean that many companies are prompted to rethink their development model and resource systems, by seeking out as yet unavailable skills via the search for new combination modes (Naidoo, 2010; Despahandé & Farley, 2004).

But how was perceived the recent crisis?

## 2. The Study

The Panel On The Web Institute and the consulting firm Mercuri Urval recently conducted a survey of 844 businesses in 8 countries (Austria, Belgium, Denmark, France, Germany, Italy, the Netherlands and Switzerland), which yielded some interesting results on perceptions of the effects of the crisis and the measures to be taken in order to emerge from it. The objective of the survey was to build upon the recent crisis in order to identify the key factors for success likely to ensure sustained growth for companies, by interviewing a group of senior managers, including a high proportion of executive officers (57%).

The questionnaire comprised 37 questions (both quantitative and qualitative) on the perception of the crisis and the assessment of the key factors for a return to sustainable growth. The 46 factors were therefore organized into 4 main factors: financial management (11), specific skills (11), internal management (13), market / customer orientation (11). The CAPI face-to-face interviews were conducted by senior consultants from Mercuri Urval, a human resources consultant firm which funded and spearheaded this European study. Each one lasted around 1h 30 minutes. Different sectors of activities were chosen from industry to services, mixing small, average and big sized-firms (with no specific quotas albeit). The field was conducted in October and November 2009.

The study was conducted face-to-face while the effects of the crisis were still being sharply felt (table 1), and revealed surprising results on more than one level (see for example in table 2 the hierarchy of the indicators used by Top Management to assess the health of their company and the surprisingly low importance of the stock price and the health of the sector). In fact, even though the crisis will still have an impact on businesses in 2010, it cannot be said that pessimism is the dominant sentiment to emerge from the results of the survey. Fundamentally, to managers in Europe, the crisis appears to have been the best time to think about new solutions and particularly, to carefully consider the competitive levers for their business and try to answer the following question: in such a hard-hit environment, what will return my company towards growth? A reading of the economic news would easily lead one to believe that companies are singularly obsessed with cutting costs. However, this is far from the truth, and in fact, for many companies, priorities include finding ways to enhance the value of human capital, which is seen as one of the keys to breathing new life into companies. In this regard, the crisis was revealing. In the face of all kinds of constraints, it is important to enhance value across the board, including in quality of services, enhancing core competencies, quality of recruitment, training, ability to innovate, etc. This approach, which is akin to making a 360° turn in terms of management, is generally being embraced by all the industrialized countries in Europe, regardless of whether they are located in the North, South, East or West.

Insert Table 1 Here

Insert Table 2 Here

Although the valuation strategy does not preclude a strategy to reduce the costs, its increasing popularity reveals a new mindset and desire to enhance internal competencies with the objective of identifying new ways of doing things. From this perspective, it is apparent that companies are no longer simply trying to differentiate their goods and services, but are also trying to do things differently, that is to make a greater commitment to strategies involving change. The crisis remains quite a constraint, but also presents a wonderful opportunity, a unique time to create value and to dare to think of things that were unthinkable during normal times. In reality, this awareness was also prompted by thoughts about the future of European companies: crisis or no crisis, the globalization of economies goes hand in hand with delocalization of businesses, a phenomenon which led all European companies to "take their new destiny into their own hands," to quote one of the managers interviewed.

## 3. The Crisis as an Opportunity

### *3.1 Exploring New Approaches*

Although 73% of the companies surveyed believed they were affected by the crisis, this result must be tempered by two other results. First, in 2010, 61% believe that their situation will improve and second, and perhaps more importantly, 77% believe that the crisis provided them with a wonderful opportunity, an opportunity, most notably, to implement new management methods (see table 3). The crisis is therefore frequently viewed as the best time to experiment, a unique time to test new ways of doing things. The fact that changes were made during and as a result of the crisis is therefore not a myth, it is a reality. From this point of view, the crisis is a time which made it possible to experiment, a time when resistance faded in the face of the urgent need to return to generating growth. Although internal tensions were exacerbated by corporate plans, the crisis also presented an opportunity to (re)mobilize all personnel, a vision, however, that was more entrenched in companies in Northern Europe (Germany, Belgium and Denmark) than in those in central Europe (France) and Southern Europe (Italy).

Insert Table 3 Here

The crisis was also the time when projects that had previously been considered (or left dormant for a very long time) materialized into action plans. The results of the survey also revealed a large degree of consistency between the perception of the crisis and the factors likely to enable companies to confront it, and the action plans that were implemented. The indicated priorities were reflected in the operational strategy; they were not simply used as sound effects for internal use. The desire to win over new customers, improve service, increase the level of motivation among employees as well as profitability became the focus of concrete actions.

The crisis is therefore the time to reconsider and as we will see, this process involves questioning existing practices but, more importantly, provides an opportunity to explore new approaches deemed to be too risky during periods of growth. In future, effective implementation of such approaches can be authorized by offering managers new "target areas." A reading of the numbers reveals that although the crisis favors this time of collective reflection, it certainly provides one of those rare moments where there is a risk of completely changing routine practices, all too often inspired by a "benchmark" or simply "cutting and pasting" the actions of others. In a way, it is also the best time to adjust to and even make changes proactively. By adjusting to changing economic conditions, the goal is indeed to adapt to a new economic cycle: that of hyper-competition (globalization of economies, competition from developing countries) and hyper-risk (emergence of new financial, economic, environmental, corporate and political risks, etc.). It is also a time when weaknesses or problems for which solutions had been postponed because they were not considered to be priorities are revealed and reconsidered and perceived as impediments to growth.

### *3.2 Improving Existing Resources*

The crisis is also the best time to redefine priorities and from this point of view, the findings of the survey are quite interesting. The top priority is to reinforce human capital as a preamble to the dual concerns of improving the quality of service (a key success factor in a post-industrial economy) and listening to customers (a prerequisite for confidence and consumer spending to return). Withstanding the crisis and emerging from it faster than competitors requires placing greater value on human capital, a value which is deemed to be the only one likely to create conditions for success in the medium and long term. It is easy to see that at this level, management is no longer a matter of applying techniques better than others but requires often complex management of competencies, an area which also requires experimenting with new ways of doing things (see table 4).

Faced with budget constraints that have become even more restrictive, businesses have become aware that searching for reservoirs of productivity, knowledge and lastly innovation should start within the business itself. The crisis has had an undeniably introspective effect. It is a time when businesses embark on a journey of self-discovery by focusing attention on existing resources and the multiple ways to develop them even further. It is also a time when the dynamic and progressive aspects of the human factor are being acknowledged.

With respect to the two other priorities, we realize that for businesses, it is no longer a matter of simply repeating the claim that the customer is king, but to create the conditions for such a claim effective. Quality of service must be "real" and not simply serve as a company slogan; a majority of businesses share the opinion that they need to improve their ability to listen to customers. This demonstrates that companies have become aware that relationships with customers are not always optimal and that everything is not always done to listen to customers. By complicating maintenance of the business/customer relationship, the crisis is forcing companies to extensively reconsider this relationship and act, from a business point of view, to attract new customers on the one hand and foster greater loyalty among existing customers on the other. This is achieved through a service strategy that is clearly identified as a priority. In a way, the crisis is therefore the moment of truth, a time to assess certain measures and strike a balance between objectives which are often posted definitively and their actual effectiveness. Considered all too often to be a matter of techniques or managerial trends, the customer relationship is now being assigned a new objective: being effective. It is important to remember that this effectiveness is increasingly being achieved through policies based on personalization in areas which are often dominated by an impersonal relationship falsely gilded with so-called personalization.

From this point of view and this is where the survey provided an optimistic vision of the post-crisis period, the crisis will no longer simply trigger introspective reflexes, but will prompt real strategic diagnoses where weaknesses are no longer underestimated but seen as major obstacles to growth and the most certain path to failure.

Insert Table 4 Here

## 4. How to Return to Generating Growth

### *4.1 Is the Market/Customer Focus an Initial Reflex?*

With respect to the key success factors likely to ensure growth, the survey revealed that although the market-focused approach is still preferred (76%), core competencies obtained the second highest score (61%) far ahead of internal management (43%) and finance and management (32%). Although companies continue to prioritize the marketing approach, they no longer ignore the extensive reserves of their competitive abilities. The strategic and marketing aspects are no longer separated. With respect to the market-focused approach, business priorities are clearly focused on obtaining new customers (71%); this approach therefore significantly outpaces fostering loyalty among customers (55%), often promoted by academic literature, and customer service (45%) as the immediate and initial reaction to a decline in activity and business revenue. As we will explain in further detail, the crisis has accelerated a return to basics. Fewer efforts are being made to establish an international presence, expand into new markets and improve

short-term availability, and instead, more efforts are being spent on restoring profitability and a sufficient level of activity, achieved by strengthening relations with its best customers. However, as indicated above, this strengthening of customer relationships is also clearly perceived as the main priority for companies in the future (see table 5). At this level, the crisis certainly revealed weaknesses.

The crisis affected the customer portfolio of most companies and this is exactly what needs to be restored. We should therefore not be surprised that for companies in Belgium and The Netherlands, the scores for identifying new customer expectations were very high. Companies are no longer content to implement adaptive strategies; they also want to anticipate market trends. This approach is more popular in a block of small countries in the North (Belgium, The Netherlands, etc.) than it is in all other countries, undoubtedly because company managers in these countries are aware of the limitations of their domestic markets.

Insert Table 5 Here

*4.2 Is Innovation a Crisis Killer?*

Quite logically, with respect to specific anti-crisis skills, companies prefer innovation (63%) over quality of service (54%) (see table 6). The results of the survey not only reveal the importance of innovation, but also reveal the fact that companies want to accelerate the frequency of this innovation in a concrete manner. Indeed, it is through innovation (fortunately) that companies hope to attract new customers and meet new expectations. On this level, the crisis has appeared to amplify awareness that it is necessary to enter an era of "change" and not just "differentiation" in terms of innovations. Indeed, in order to emerge from the crisis, the ability to simply be different does not appear to be the preferred approach. Innovation must serve as a means to break with tradition and redefine the value of products and services. This explains why human and intellectual capital is also being valued. Change strategies, more than any other strategy, require mobilization of skills and new combinations of skill sets. Companies not only focus on what they own and what they know how to do, but also move beyond that point to think of new ways of doing things. Innovation is clearly perceived as being the result of a complex disruptive process and no longer as the result of strict obedience to an internal process directed solely by the R&D function.

This helps clarify why innovation ranks second for strategies in existing action plans. Innovation is not an order, it is the result of multiple actions implemented within the company; it can be encouraged but it can never be determined. In the ranking for the key success factors, we realized that there is a certain logic to the choices being made by companies. Winning over new customers comes first, ahead of innovation, which in a way is the means of achieving these conquests, and ahead of profitability, a consequence of the first two key success factors. The hierarchy of core competencies which must be mastered is quite logical: strengthening the ability to innovate in order to win new customers, improving quality of services to foster greater customer loyalty and then investing in human and intellectual capital, now considered to be a greater priority than just technological and material capital within the context of a post-industrial economy. Of course, some disparities remain among countries. The Italian economy, which has a substantial sub-contracting economy, is having to deal head on with competition from developing countries in terms of costs and expects to maintain its investments in order to improve its productivity; France is placing further emphasis on the quality of service, while countries in the North – Belgium, The Netherlands and especially Denmark – are trying to enhance organic growth.

Insert Table 6 Here

*4.3 Is Taking Action Based on Employee Motivation a Profitable Investment?*

The effect of the crisis also had an impact on the priorities indicated for internal management (see table 7). A major concern for businesses is of course the motivation of employees (60%), which is a higher priority than management of skills and profiles (48%). In this case, the short term is given priority and indirectly, we have a good indication of a corporate climate which has undoubtedly been affected by the crisis. Of course, a number of differences can be noted from country to country: Italy, a country with a strong tradition of unionism is more concerned with the deterioration of the corporate climate, which explains its focus on motivating employees and middle management and catching up with requisite salary increases; countries in the North – Denmark, Belgium but especially The Netherlands – are inclined to invest in new structures of work organization (collaboration, network, project by project, etc.) in order to offer other perspectives to employees and managers. However, in a European context where the recent crisis has served as a catalyst for previous frustrations resulting from the stagnation of purchasing power since the move to the euro (with a marked impact in some countries, especially in France, due to the gap between price increases and employee income), it is therefore not surprising that senior managers are concerned about the decline in the motivation of middle management (which ranks 3rd in terms of priorities for action). Most of the survey respondents held senior management positions, which undoubtedly explains the relative discretion of their own level of motivation. However,

many were of the opinion that the crisis had had a very negative effect on the motivation of middle management and even more so on employees and technicians at the lower end of the scale.

Insert Table 7 Here

For all businesses, regardless of the sector concerned, one key to emerging from the crisis lies in management's ability to ensure that employees remain motivated and that the crisis does not affect the internal cohesion of companies. At least as much as classic economic-related effects (decline in business revenue and profitability), today's fears concern the internal breakdown of a business at the very point when it is counting on its human assets to emerge from the crisis and discover new ways to foster growth. When asked questions about the actions that had been planned to deal with this area of concern, we note that there is no dissonance between what was said and actions to be taken. Indeed, actions have been planned to improve the level of motivation of employees and they are being prioritized. However, there is marked homogeneity in the envisaged priorities: in Denmark and Belgium, emphasis is being placed on new forms of organizing work such as collaborative management, organizing networks or management on a project by project basis. In France, priorities concern management of profiles and skills, motivation of employees and amending work hours to offer greater flexibility. In Italy, improved management of internal promotion and adjustments to the salary schedule are planned in order to prioritize improvement in the corporate climate. Although the final objective is always the same (improve employee motivation adversely affected by crisis management solutions, corporate plans, cost cuts, salary freezes, etc.), each country defines its priorities based on the social context, economic environment and professional culture specific to that country.

More generally speaking and beyond the crisis, we therefore note that the issue of employee motivation has recently returned with a vengeance. Perhaps, we have for too long taken this for granted, believing that motivation resulted from a few well-known formulas. Although the results of the survey must be interpreted with care (due to the effects of the crisis), they nevertheless reveal that employee motivation is an issue which concerns all levels of the business, because, as admitted by the managers themselves, it affects the most basic of elements: involvement in the work. The companies surveyed ranked the need to motivate higher than the need for skills because they believe that greater motivation is a prerequisite for developing skills, which are often the end result. From now on, much is expected from motivation, because aside from greater involvement, companies also want employees to take the initiative and, regardless of the position held, become resources and allow the company to achieve its objectives, most notably in terms of innovation.

## 5. Return to Basics

### *5.1 The More Things Change*

The crisis has been very revealing. By prompting introspection, it has improved diagnosis of the effectiveness of the strategies implemented up to that point and allowed questions to be raised regarding the opportunity to experiment with new approaches or simply return to basics, most notably through customer relationships and effectively valuing human resources. The key success factors indicated highlighted a clear perception of the drivers to be competitive as well as a clear perception of future challenges and actions to be taken in order to deal with them. From this point of view, innovation has a dual objective: to help businesses emerge from the crisis and allow companies to renew their strategic advantages. Due to its role as a catalyst, the hope is also that innovation will influence the motivation of employees through the implementation of so-called pilot structures, where the goal is to obtain greater interaction between the various stakeholders of the company. It is important to point out that this new vision of managing motivation through new organizational choices and new work methods is currently more popular in the "smaller" countries in Northern Europe than it is in the other large countries (France, Germany, Italy, etc.). Belgium, The Netherlands and Denmark have given strong indications that they are committed to implementing action plans in these areas, while France, Germany and Italy are starting to study these issues. Does this reflect a different hierarchy in corporate concerns? Does it reflect a greater ability to react and adjust in "smaller" countries in the North? Does it reflect resistance to changes in economies used to "rounds" of corporate negotiations?

Whatever the reason, some economies – particularly Italy, but also France, Germany and Switzerland – appear to be showing greater resistance than others vis-à-vis new managerial practices, which they deem to be important but have yet to establish any real priority of action for them to date (e.g., management within the context of a network, delegation, project management, collaborative management, etc.). Whether it is a reaction to the current trend or a focus on the essential, companies are opting for a certain degree of classicism in terms of management and would like first and foremost to improve the quality of service.

With respect to the quality process, the desire in this area is also to return to basics, customer service, quality of service, listening to customers. The bet is that by making these objectives more effective, it will not only be possible to win over new customers but to enhance their loyalty. In all sectors, improving processes is currently all the rage. It is no

longer a matter of doing something new just for the sake of it, but of questioning the actual effectiveness of practices until they are implemented, and then doing everything possible to optimize these practices. The crisis alone did not create new assessment mechanisms; it simply ensured that they were fully activated. Assessment cannot be separated from the cost-cutting process because it is by optimizing recourse to classic, tried and true techniques that businesses are also trying to obtain savings in order to return to more acceptable levels of profitability as soon as possible. This is the first step, the one that was immediately implemented by almost all countries as of the first few months of the crisis, in order to deal with a decline in business revenue and results. The initial measures focused on reducing investments, limiting expenses, reducing salary costs, risk management (financial, customer, etc.), as well as "classical" measures, which, in some cases, amplified the crisis by having an adverse impact on sub-contractors, suppliers, industrial/commercial partners, etc. (see table 8). Managers in different European countries have become aware of this – and this will now affect long-term actions: encourage innovation on an ongoing basis, sustain innovation, create a value chain involving all stakeholders in the business (customers, suppliers, sub-contractors, employees, managers, investors, shareholders, etc.).

Insert Table 8 Here

One reassuring fact is that this initial return to basics does not preclude new approaches as it is precisely at this time that people are thinking of new ways of doing things, particularly in terms of optimizing customer relationships. From the same point of view, in order to motivate employees, many companies are betting on management on a project by project basis and are looking for new, perhaps more collective approaches to further involve personnel. This demonstrates how much the crisis has affected the usual methods which businesses use to manage and motivate. It is the individualistic idea of motivation which is also being reconsidered. Although it produces good results during periods of growth, its limitations are easy to see when incentives offered by the business decline. It is the entire balance of the incentive/contribution pairing, which has been so well illustrated by Barnard, which is now being reconsidered.

*5.2 Emphasizing Action*

The businesses that participated in this survey reacted by implementing action plans and ensuring that the stated priorities were operational. Particular attention is being focused on acquiring new customers and it is at this level that businesses are focusing their operational strategies. The priority is therefore to increase business revenue and, at the same time, try to restore profitability. It can be noted that these plans and the market-focused approach have largely been finalized and are currently being implemented. We have moved from the reflection/study phase to the action phase. All action plans concerning key factors of success relating to the market-focused approach have been finalized, which is not the case for those concerning basic skills or, for example, action plans concerning human and intellectual capital which are far from being finalized (see table 9). This demonstrates that the action in this area is complex and cannot simply be reduced to applying proven techniques. Businesses know that they need to act but do not always know what to do. This is further emphasized when we examine action plans for internal management. The action plans are far from being finalized and close to 43% of businesses have not envisaged an action plan to deal with the issue of motivation, even though it is considered to be a priority. Businesses have diagnosed the problem but appear to be unable to treat the problem (see table10).

Insert Table 9 Here

Insert Table 10 Here

These results are interesting on more than one level. First, they show that motivation remains an area where operational strategies are difficult to implement. Businesses are definitely showing signs of confusion. This should mean calling upon services associated with management of human resources: what tools should be put in place in order to deal with a lack of motivation? Second, they reveal that when it is a matter of addressing operational issues, businesses are always more comfortable with quantifiable elements or elements that can always be measured. Human assets are certainly perceived as being vectors of growth but it is very difficult to appreciate the actual dynamic involved, particularly in a period of crisis when the usual markers for human resource management seemed to be obscured. Consequently, action plans relating to the area of finance have advanced much further, especially those concerning profitability, cash flow and the financial health of customers.

At this point, we must therefore distinguish between areas where companies can take action and where they are doing so in compliance with the stated priorities, and areas where they would like to act but have had their momentum curbed by the sheer complexity of managing human resources and the difficulty of finding good ways to resolve issues considered to be crucial to the future of the business. Perhaps, at this level, there is a fear of experimenting with management styles for fear of destabilizing the business even further and because there is so little information on these management styles. We can also take the position that treating problems associated with the motivation and

strengthening of human capital does not fall within the scope of an operational strategy but should be the focus of true strategic reflection, perhaps in the longer term.

The crisis has forced businesses to ask questions; final answers will be obtained at a later date because they require the mobilization of information that businesses do not always have on hand when classic and routine management of human resources faces limitations. Nevertheless, specifically with respect to human resources, we cannot help but notice the quick action taken by businesses in Europe. These plans were developed and implemented in just a few months and in a particularly difficult environment both externally and internally. We can also say that there is no proof that the old plans which were reactivated continue to be relevant; the crisis presented an opportunity to experiment with solutions that had been affected by the circumstances.

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Table 1. Impact of the economic slowdown on companies' businesses

| How would you say your company's situation has been affected so far by the current economic change? Would you say it has been… | | | | | | |
|---|---|---|---|---|---|---|
| | Very much affected | Rather affected | ***Very much + rather affected*** | Rather unaffected | Completely unaffected | ***Rather + completely unaffected*** |
| Austria | 32% | 37% | ***69%*** | 31% | 0% | ***31%*** |
| Belgium | 42% | 31% | ***73%*** | 21% | 6% | ***27%*** |
| Denmark | 42% | 36% | ***79%*** | 20% | 1% | ***21%*** |
| France | 32% | 26% | ***58%*** | 41% | 1% | ***42%*** |
| Germany | 29% | 43% | ***72%*** | 26% | 2% | ***28%*** |
| Holland | 35% | 41% | ***76%*** | 21% | 3% | ***24%*** |
| Italy | 57% | 36% | ***93%*** | 7% | 0% | ***7%*** |
| Switzerland | 26% | 33% | ***59%*** | 38% | 3% | ***41%*** |

Table 2. Health economic indicators used by Top Management to assess the impact of the economic slowdown on the business of their own company

| Which health indicators lead you to believe that your business is affected or not by the economic change? | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Austria | Belgium | Denmark | France | Germany | Holland | Italy | Switzerland |
| ***Sales*** | ***89%*** | ***90%*** | ***95%*** | ***93%*** | ***89%*** | ***87%*** | ***91%*** | ***89%*** |
| Sales (volumes) | 84% | 73% | 89% | 82% | 86% | 77% | 86% | 85% |
| Sales (margin) | 53% | 59% | 48% | 49% | 39% | 55% | 50% | 48% |
| ***Financial results*** | ***89%*** | ***79%*** | ***67%*** | ***84%*** | ***77%*** | ***77%*** | ***73%*** | ***76%*** |
| Operational result | 79% | 66% | 47% | 65% | 69% | 62% | 50% | 71% |
| Cash reserves | 53% | 37% | 26% | 41% | 35% | 43% | 38% | 30% |
| ***Human ressources*** | ***53%*** | ***52%*** | ***41%*** | ***50%*** | ***47%*** | ***61%*** | ***46%*** | ***53%*** |
| Layoffs | 47% | 45% | 33% | 41% | 41% | 52% | 38% | 47% |
| Frost of salaries | 21% | 21% | 7% | 19% | 11% | 13% | 13% | 12% |
| ***Budget & costs*** | ***53%*** | ***49%*** | ***38%*** | ***44%*** | ***57%*** | ***70%*** | ***55%*** | ***49%*** |
| Operational budget | 21% | 18% | 14% | 13% | 18% | 42% | 14% | 20% |
| Investments | 42% | 39% | 27% | 34% | 42% | 45% | 36% | 29% |
| Environment | **11%** | **14%** | **9%** | **22%** | **11%** | **12%** | **14%** | **15%** |
| Stock price | 0% | 10% | 5% | 7% | 10% | 4% | 11% | 6% |
| Benchmark | 11% | 4% | 5% | 15% | 3% | 8% | 4% | 9% |

Table 3. The economic slowdown: an opportunity to reconsider the management practices

| Which of these two statements best describe your opinion as of today? | | | | |
|---|---|---|---|---|
| | **The economic slowdown is a wonderful opportunity to think about and to deploy new management practices to reach a sustainable growth** | | **The economic slowdown is similar to all the others. After a while, people will realize that nothing has changed in the management practices to reach a sustainable growth** | |
| ***Total Europe*** | ***77%*** | ***Rank*** | ***23%*** | ***Rank*** |
| Austria | 68% | 7 | 32% | 7 |
| Belgium | 76% | 5 | 24% | 5 |
| Denmark | 87% | 1 | 13% | 1 |
| France | 81% | 3 | 19% | 3 |
| Germany | 71% | 6 | 29% | 6 |
| Holland | 78% | 4 | 22% | 4 |
| Italy | 82% | 2 | 18% | 2 |
| Switzerland | 65% | 8 | 35% | 8 |

Table 4. Top European CEOs' priorities to go out of the crisis in a long-lasting way

| Rate the following in terms of priorities for your company to go out of the crisis in a long-lasting way | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ***% More important (*)*** | Austria | Belgium | Denmark | France | Germany | Holland | Italy | Switzerland |
| Core competencies | **79%** | 69% | 65% | 57% | 64% | 58% | 66% | 62% |
| Client / market orientation | **79%** | **76%** | **75%** | **76%** | **76%** | **78%** | **73%** | **81%** |
| HR management | 37% | 38% | 38% | 54% | 27% | 49% | 52% | 34% |
| Financial management | 42% | 35% | 36% | 32% | 28% | 26% | 41% | 27% |

*Note:* (*) the most important per country is underlined in bold.

Table 5. Top European CEOs' priorities in the client market orientation

| Rate the following in terms of priorities for your company to go out of the crisis in a long-lasting way | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ***% More important (*)*** | Austria | Belgium | Denmark | France | Germany | Holland | Italy | Switzerland |
| **Client / market orientation** | **79%** | **76%** | **75%** | **76%** | **76%** | **78%** | **73%** | **81%** |
| Improve quality of clients' portfolio | 37% | 28% | 28% | 24% | 31% | 46% | 36% | 27% |
| Acquire new clients | 63% | **73%** | **68%** | **72%** | **77%** | **72%** | **61%** | **76%** |
| Retain clients (loyalty) | 63% | 63% | 46% | 53% | 48% | 71% | **61%** | 52% |
| Identify new expectations | 47% | 59% | 25% | 35% | 40% | 66% | 30% | 39% |
| Improve clients' service | **68%** | 48% | 44% | 51% | 44% | 50% | 14% | 42% |
| Open to new markets | 32% | 49% | 47% | 44% | 28% | 46% | 39% | 39% |
| Internationalize the business | 16% | 20% | 12% | 19% | 19% | 13% | 14% | 15% |
| Improve the ability to deliver | 32% | 31% | 33% | 43% | 37% | 38% | 38% | 32% |
| Improve the negotiating skills | 11% | 15% | 22% | 16% | 11% | 21% | 5% | 13% |
| Increase the orders' income | 5% | 18% | 22% | 25% | 20% | 13% | 14% | 16% |
| Increase the quality of orders' portfolio | 21% | 17% | 15% | 9% | 14% | 27% | 14% | 9% |

*Note:* (*) the most important per country is underlined in bold.

Table 6. Top European CEOs' priorities in the core competencies management

| Rate the following in terms of priorities for your company to go out of the crisis in a long-lasting way | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ***% More important (*)*** | Austria | Belgium | Denmark | France | Germany | Holland | Italy | Switzerland |
| **Core competencies** | **79%** | **69%** | **65%** | **57%** | **64%** | **58%** | **66%** | **62%** |
| Increase the innovation | 53% | **70%** | 56% | 65% | **52%** | 67% | **82%** | 56% |
| Increase the investments | 16% | 30% | 25% | 15% | 18% | 21% | 38% | 17% |
| Improve the quality of the offering | 32% | 44% | 33% | 46% | 28% | 46% | 45% | 40% |
| Improve the quality of services | **63%** | 63% | 48% | **71%** | 44% | 59% | 45% | **57%** |
| Improve the quality of the recruitment | 21% | 31% | 19% | 29% | 20% | 20% | 30% | 28% |
| Improve the quality of the training | 21% | 32% | 28% | 26% | 19% | 40% | 30% | 23% |
| Decrease the staff turnover rate | 5% | 8% | 7% | 4% | 11% | 13% | 7% | 11% |
| Facilitate the organic growth | 47% | 34% | **60%** | 31% | 45% | 36% | 11% | 37% |
| Facilitaite the external growth | 37% | 31% | 34% | 25% | 25% | 21% | 14% | 17% |
| Invest in the human resources | 37% | 65% | 28% | 41% | 44% | **68%** | 63% | 40% |
| Invest in the technology | 21% | 14% | 9% | 12% | 17% | 28% | 18% | 12% |

*Note:* (*) the most important per country is underlined in bold.


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Table 7. Top European CEOs' priorities in the HR management

| **Rate the following in terms of priorities for your company to go out of the crisis in a long-lasting way** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ***% More important (*)*** | Austria | Belgium | Denmark | France | Germany | Holland | Italy | Switzerland |
| **HR management** | **37%** | **38%** | **38%** | **54%** | **27%** | **49%** | **52%** | **34%** |
| Motivate the Executives | 11% | 37% | 33% | 40% | 15% | 28% | 34% | 24% |
| Motivate the middle management | 32% | 54% | 47% | 40% | 41% | 46% | 52% | 40% |
| Motivate the employees | **58%** | **59%** | **61%** | **57%** | **55%** | **51%** | **77%** | **50%** |
| Encourage the internal promotion | 11% | 25% | 5% | 19% | 8% | **51%** | 9% | 6% |
| Revise the salary grids | 11% | 11% | 5% | 7% | 16% | 4% | 30% | 12% |
| Improve the skills | 42% | 54% | 44% | 46% | 50% | 50% | 48% | 47% |
| Manage the careers | 21% | 27% | 15% | 19% | 23% | 19% | 36% | 19% |
| Internationalize the careers | 5% | 8% | 2% | 6% | 14% | 5% | 11% | 8% |
| Facilitate the project management | 42% | 42% | 53% | 47% | 53% | 40% | 18% | 38% |
| Facilitate the flexibility of schedules | 11% | 20% | 13% | 10% | 10% | 31% | 14% | 12% |
| Improve the social climate | 11% | 18% | 16% | 19% | 16% | 21% | 48% | 15% |
| Facilitate the collaborative work | 32% | 28% | 18% | 15% | 38% | 52% | 14% | 36% |
| Improve the level of delegation | 26% | 24% | 28% | 34% | 24% | 22% | 36% | 21% |

*Note:* (*) the most important per country score is underlined in bold.

Table 8. Top European CEOs' priorities in the financial management

| **Rate the following in terms of priorities for your company to go out of the crisis in a long-lasting way** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ***% More important (*)*** | Austria | Belgium | Denmark | France | Germany | Holland | Italy | Switzerland |
| **Financial management** | **42%** | **35%** | **36%** | **32%** | **28%** | **26%** | **41%** | **27%** |
| To control over the stock price | 0% | 4% | 7% | 3% | 6% | 1% | 5% | 3% |
| To check the financial health of clients | 26% | 48% | 45% | 49% | 36% | 46% | 61% | 42% |
| To check the financial health of suppliers | 21% | 10% | 15% | 18% | 13% | 7% | 14% | 12% |
| To increase the net cash | 47% | 31% | 25% | 32% | 20% | 37% | 45% | 24% |
| To decrease the level of debts | 32% | 23% | 28% | 24% | 9% | 13% | 41% | 12% |
| To increase the dividend to shareholders | 11% | 14% | 2% | 4% | 3% | 23% | 5% | 4% |
| To improve financial ratios | 11% | 8% | 12% | 6% | 13% | 29% | 7% | 5% |
| To increase the profits | **68%** | **61%** | **73%** | **69%** | **60%** | **56%** | **77%** | **65%** |
| To increase the cash flow | 53% | 51% | 38% | 29% | 31% | 54% | 32% | 37% |
| To increase the working capital needs | 11% | 25% | 14% | 15% | 6% | 28% | 14% | 6% |
| To increase the working capital | 11% | 17% | 31% | 13% | 8% | 13% | 11% | 6% |

*Note:* (*) the most important per country score is underlined in bold.

Table 9. Levels of priorities and levels of completion of action plans

| **Average is 100 for both importance and completion level across priorities** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Client / market orientation** | | **Core Competencies management** | | **Financial management** | | **HR management** | |
| | *Index importance* | *Index completion* | *Index importance* | *Index completion* | *Index importance* | *Index completion* | *Index importance* | *Index completion* |
| **Total Europe** | 117 | 110 | 107 | 100 | 79 | 118 | 97 | **72** |

*Note:* (*) underlined in bold, lowest completion rate.

Table 10. Top European CEOs' ongoing action plans in the HR management

| **Rate the following in terms of completed or ongoing action plans within your company** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ***% Completed + still running*** | Austria | Belgium | Denmark | France | Germany | Holland | Italy | Switzerland |
| **HR management** | | | | | | | | |
| Motivate the Executives | **85%** | 42% | 64% | 52% | 40% | 61% | 42% | 45% |
| Motivate the middle management | 50% | 45% | 60% | 52% | 48% | 69% | 62% | 44% |
| Motivate the employees | 45% | 57% | 65% | 46% | **57%** | 70% | 53% | 47% |
| Encourage the internal promotion | 50% | 72% | 25% | 31% | 47% | **82%** | **89%** | 53% |
| Revise the salary grids | 50% | 38% | 50% | 20% | 19% | 50% | 53% | 36% |
| Improve the skills | 38% | 53% | 65% | 42% | 44% | 59% | 89% | 57% |
| Manage the careers | 25% | 58% | 38% | 31% | 33% | 33% | 50% | 49% |
| Internationalize the careers | 35% | 33% | 25% | 20% | 32% | 33% | 50% | 50% |
| Facilitate the project management | 38% | **77%** | 67% | 63% | 46% | 69% | 40% | **63%** |
| Facilitate the flexibility of schedules | 10% | 43% | 73% | **71%** | 47% | 69% | 63% | 61% |
| Improve the social climate | 50% | 54% | 71% | 54% | 32% | 71% | 52% | 39% |
| Facilitate the collaborative work | 83% | 70% | **80%** | 30% | 40% | 66% | 38% | 51% |
| Improve the level of delegation | 40% | 71% | 75% | 52% | 36% | 60% | 35% | 34% |

*Note:* (*) the most important per country score is underlined in bold.


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