

# **A Typology of International New Ventures: Empirical Evidence from High Technology Industries**

## **Abstract**

This study examines determinants of different types of International New Ventures (INVs), namely Export Start-up, Geographically focused Start-up, Multinational Trader and Global Start-up. Whereas this typology of INVs established by Oviatt & McDougall (1994) has been widely accepted in the literature, empirical testing of the determinants of INV types is largely missing. Theoretically our arguments build on the International New Venture Theory (INVT; Oviatt & McDougall, 1994). Hypotheses generated from our framework are tested on 195 German high-tech enterprises. Results show that growth orientation, prior international experience, knowledge intensity, and learning orientation distinguish significantly between the different INV types. Accordingly, this paper contributes to actual entrepreneurship inquiry by demonstrating INVs to be a rather heterogeneous than homogeneous group of enterprises. Therefore, we underline theoretical assumptions from INVT by giving empirical evidence for some of the therein mentioned differences among INVs.

## INTRODUCTION

Due to the growing importance of young entrepreneurial firms acting on a global stage the amount of international entrepreneurship literature has continuously increased within the past decade (McDougall, Oviatt & Shrader, 2003). The main body of this research is directed towards the comparison between early and late internationalizing firms primarily elaborating determinants of international new venturing.<sup>1</sup> In their seminal framework Oviatt & McDougall (1994) showed that different types of INVs prevail. However, studies examining determinants of the different types of INVs are largely missing. Thus, the question if INVs are a rather homogenous than a heterogeneous group of firms has not yet been fully elaborated. As the different INV types significantly differ both in their intensity of internationalization as well as their diversity of internationalization, there is reason to believe that the determinants of the INV types differ significantly as well. This assertion is supported by several studies elaborating the differences among INVs by examining either the intensity (Bloodgood, Sapienza & Almeida, 1996; Reuber & Fischer, 1997; Sapienza, De Clercq & Sandberg, 2005) or diversity of international activities (Kundu & Katz, 2003; Preece, Miles & Baetz, 1998). Results of the studies reveal that INVs are not as homogenous as it might appear at a first glimpse. However, these studies fail to compare explicitly defined groups of INVs. This is an important issue since depending on the scale and scope of international activities INVs face different barriers to internationalization, have a diverging resource base and more differentiated managerial cognitions (Pulkkinen & Larimo, 2007).

Hence, Oviatt & McDougall's (1994) idea that different types of INVs are determined by different factors still needs quantitative empirical proof. Thus, at the current state of the

---

<sup>1</sup> For a review of these studies see e.g.: Johnson, 2004; Rialp, Rialp & Knight, 2005.

---

research field there is a high need to examine how firm and entrepreneur-related conditions influence the formation of the different types of INVs.

In this article we contribute to the current scientific internationalization inquiry by elaborating the determinants of different types of INVs, namely Export Start-up, Geographically Focused Start-up, Multinational Trader and Global Start-up. Our study shows that the types of INVs, adapted from Oviatt and McDougall's framework (1994), indeed vary from each other in terms of entrepreneur and firm related characteristics. In order to achieve our study's objective, we examine the effect of growth orientation, prior international experience of the management, knowledge intensity, and learning orientation on the different INV types. We test our hypotheses on a dataset of 195 German INVs. After reporting and discussing the results, we highlight the limitations and further research implications.

### **DEVELOPMENT OF THE RESEARCH MODEL**

The predominant definition of INVs was first introduced by Oviatt & McDougall (1994), and describes an INV as “a business unit that, from inception, seeks to derive significant competitive advantages from the use of resources and the sale of outputs in different counties” (Oviatt & McDougall, 1994: 49).

The seminal framework created by Oviatt & McDougall has challenged traditional stage models of internationalization by stating that foreign markets are not only entered by large and internationally experienced multinational enterprises (MNEs), but also increasingly by start-ups at or near their inception (Autio, Sapienza & Almeida, 2000). The International New Venture Theory (INVT) focuses on the question of how it is possible for companies to venture into foreign markets from inception. To answer this research question Oviatt & McDougall (1994) identify different determinants for international new venturing. First, international new ventures are characterized by a highly *internationally experienced*

---

*management* team helping the firm to overcome the liabilities of foreignness when venturing abroad early in their life-cycle. Second, international new ventures are driven by a strong degree of *growth orientation* leading the firm to proactively pursue international growth opportunities from early on. Third, international new ventures characterized by *knowledge intensity*. Due to the mobility of their knowledge international new ventures find global demand in niche markets forwarding international sales and leading to exploit international growth opportunities more flexibly and less constrained by national boundaries (Autio et al., 2000). Fourth, international new ventures have a strong *learning orientation*, which leads the firm to search for new knowledge in foreign markets. Thus, due to its eclectic explanation of INV's emergence combined with the theoretical pluralism, which is requested by many scholars (e.g. Coviello & McAuley, 1999), we apply INVT to explore our research question.

Besides addressing determinant factors for international new venturing, Oviatt & McDougall (1994) identify different typologies of INVs. These are

1. *Export-Import Start-ups*, which coordinate just a few activities, mostly logistics, abroad and operate in few international markets.
2. *Multinational Traders*, which on the one hand possess a limited degree of internationalization and on the other hand have a high degree of international diversification in terms of markets.
3. *Geographically Focused Start-ups*, which are internationally concentrated, but coordinate plenty operations abroad.
4. *Global Start-ups*, which are characterized by a huge number of foreign markets served, as well as the coordination of many activities across countries.

Figure 1 illustrates the different types of international new ventures along the dimensions international intensity and international diversity. We adapted these dimensions from the original classification in order to be better able to empirically compare among the

---

different INV types. As the number of value chain activities coordinated abroad leads to measurement problems (Jones & Tagg, 1999; Saarenketo, Kuivalainen, & Puumalainen, 2001), we use percentage of foreign sales to total sales as a proxy for the intensity of international activities instead.

-----  
Insert Figure 1 around here  
-----

The major determinant factors and their impact vary for the different types of international new ventures according to Oviatt & McDougall (1994). Export Start-ups and Multinational Traders are seen as INV types which are the most comparable to each other. Their success depends on the ability “to spot and act on emerging opportunities” before increased competition occurs (Oviatt & McDougall, 1994: 58). Thus, a stronger *learning orientation* prevails for these groups of international new ventures. Geographically Focused Start-ups operate in selected foreign markets on a high scale. In order to serve very specialized needs, they are characterized by very *knowledge intense products* and services. Global Start-ups, which are the most difficult INVs to develop, derive “significant competitive advantage from extensive coordination among multiple organizational activities” in various countries (Oviatt & McDougall, 1994: 59). Their intense international activity at a young age predominantly results from a distinctive *growth oriented attitude* of the management, and will be facilitated if a high degree of *prior international experience of the management team* prevails. We elaborate on these relationships in more detail in the following hypotheses section.

---

## HYPOTHESES

*Growth orientation.* The pivotal role of the management for new ventures' development has been extensively explored in prior research (Acedo & Jones, 2007; Coviello & McAuley, 1999; Dimitratos & Jones, 2005; Gilbert, McDougall & Audretsch, 2006; Nummela, Saarenketo & Puumalainen, 2004; Saarenketo et al., 2001; Zahra & George, 2002). Management characteristics do not only include capabilities, but also attitudes, such as the growth orientation by which international activities are approached (Chetty & Campbell-Hunt, 2004). Oviatt and McDougall (1994: 49) state that "new ventures begin with a proactive international strategy" in contrast to domestic new ventures. Thus, International New Venture Theory suggests founders or decision-makers to possess a distinctive proactive orientation to spot windows of opportunity on a global scale (Knight & Cavusgil, 1996). Madsen and Servais (1997) promote this view towards internationalization by stating that INVs perceive international markets as providing opportunities rather than obstacles, or generally speaking: "To be global, one must first think globally" (Oviatt & McDougall, 1995: 35). A proactive attitude towards internationalization is reflected in growth seeking behavior (Covin, Slevin & Covin, 1990) leading to earlier internationalization (Autio et al., 2000), higher levels of foreign sales and an increased commitment to foreign markets (Shrader, Oviatt & McDougall, 2000). By definition, Global Start-ups are characterized by a high scale and scope of international activities, meaning a higher commitment towards foreign markets than other INV types. This, in turn, may result in higher risks, in particular for young, financially constrained ventures (Acedo & Jones, 2007). In order to achieve such intense and diverse international operations despite the risks of failure, a proactive attitude towards internationalization is essential (Preece et al., 1998). Compared to other types of INVs - especially Export Start-ups which are characterized by a low international intensity and few

international markets involved - a growth-oriented attitude towards internationalization becomes of major importance for Global Start-ups. This leads us to the following assumption:

*Hypothesis 1: The higher the growth orientation of the firm, the higher the likelihood of a Global Start-up as INV type.*

Another key variable linked with INVs is the prior international experience of the management (Bloodgood et al., 1996; Bürgel Murray, Fier, Licht & Nerlinger, 1998; Kundu & Katz, 2003; McDougall et al., 2003). According to Cohen & Levinthal (1990), prior international experience is a proxy for new venture's absorptive capacity, which increases the "ability to identify, value, select and assimilate new knowledge" to existing knowledge (Zahra, 2005: 25). Due to an increased ability of knowledge acquisition, internationally experienced managers will more easily spot and exploit growth opportunities in foreign markets than those without prior international experience. This results in faster international growth and a higher degree of internationalization (Bloodgood et al., 1996). Therefore, prior international experience will increase the chances of accomplishing a high percentage of international sales.

At the same time we state that prior international experience not only yields higher international revenues, but also facilitates entrance into multiple foreign countries. A first foray into a foreign market is a costly learning process since the firm lacks routines how to solve problems encountered in the foreign market (Eriksson, Johanson, Majkgård & Sharma, 1997). Prior international experience of the management provides such routines for entering and serving foreign markets (Sapienza, Autio, George & Zahra, 2006) as it guarantees a profound understanding of foreign market structures and international business routines (Shrader et al., 2000). Thus, prior experience "substantially decreases costs of

---

experimentation with new solutions or trial attempts to arrive at optimal solutions [...] and decreases the time taken to enact internationalization plans and can reduce the number of opportunities lost or missed” (Sapienza et al., 2006: 923). Accordingly, international experience reduces the uncertainty of operating abroad, resulting in an increased probability of entering additional countries (Autio et al., 2000; Oviatt & McDougall, 2005). This is particularly the case for Global Start-ups which, compared to the other types of INVs, have the highest international involvement in terms of both intensity and diversity. Therefore, we assume that:

*Hypothesis 2: The higher the prior international experience of the management team, the higher the likelihood of a Global Start-up as INV type.*

In Oviatt and McDougall’s INVT (1994), knowledge has been identified as a unique resource and as one of the four necessary and sufficient elements for sustainable INV development. Several international entrepreneurship scholars recognize knowledge intensity as a key source of international competitive advantage (e.g. Autio et al., 2000; Bell et al., 2003; Coviello & McAuley, 1999; Jones, 1999). Due to the mobility of knowledge it enables firms to exploit international growth opportunities more flexibly and less constrained by national boundaries (Autio et. al, 2000; McNaughton, 2001; 2003). Knowledge increases the resource fungibility and, thus, “provides managers with greater degrees of freedom to experiment and capitalize on emergent growth opportunities in the foreign market [...]” (Sapienza et al., 2006: 925).

However, defining the different types of INVs on both international intensity and international diversity necessitates a more differentiated analysis for the impact of knowledge intensity on the different types of INVs. On the one hand, knowledge-intensive firms mostly

operating in niche markets have to internationalize quickly in order to achieve sufficient demand from niche customers. Thus, a high degree of international intensity is necessary for knowledge intensive firms in order to secure regular incomes. As the domestic market is often too limited for sufficient demand of knowledge intensive products or services, a high degree of international intensity is likely for knowledge intensive firms.

On the other hand, internationalization is often related to different hurdles and risks. Each foreign market has its own institutional particularities and differs in terms of issues such as e.g. intellectual property rights protection. This is of particular importance for knowledge intensive firms as the risk of product piracy and illegal replication endangers the unique position of the firm and therefore endangers sustainable firm development. The firm's inherent knowledge needs to be protected. "The international new venture must limit the use of its knowledge by outsiders in many countries for it to have commercial value" (Oviatt & McDougall, 1994: 56). However, operating in many international markets increases costs of control and protection. Therefore, a high degree of international diversity is less advisable for knowledge intensive INVs. Oviatt & McDougall (1994: 57) support this view stating that "it should be noted that these same characteristics [knowledge intensity] that block competitors' imitations may constrain the spread of such intangible assets [...] into multiple cultures."

Summarizing these arguments, knowledge intensity is a major determinant for Geographically Focused Start-ups as they achieve a high degree of international revenues from few international markets. Thus, costs of control to secure the unique knowledge base of the firm are limited to selected countries. We summarize our arguments in the following hypothesis:

*Hypothesis 3: The higher the knowledge intensity of a firm, the higher the likelihood of a Geographically Focused Start-up as INV type.*

As already mentioned, knowledge is a major determinant for the creation and development of INVs (Oviatt & McDougall, 1994). Not only the existing knowledge, but also the learning orientation plays a pivotal role for the internationalization pattern and, therefore, the “process of assimilating new knowledge into the organization’s knowledge-base” (Autio et al., 2000: 911).

According to Sinkula, Baker and Noordewier (1997), learning orientation is a key determinant for a firm’s propensity to generate new knowledge and leads to a higher degree of the knowledge base. A strong learning orientation of the firm implies two major aspects. On the one hand, learning orientation leads the firm to continuously search for new alternatives in established settings and “to discover imbalances of resources between countries and in creating markets where none existed” (Oviatt & McDougall, 1994: 58). Learning orientation helps to improve established marketing effectiveness and, thus, provides superior value to ultimate customers (Day, 1994). However, on the other hand, learning binds resources which might be necessary to develop new markets in further geographical areas. Thus, a high learning orientation is linked to a more “age-old type of firm” (Oviatt & McDougall, 1994: 58) developing established markets in a stepwise and incremental manner.

Especially Export Start-ups, which act on a low international scale and scope, need to build up specific knowledge about the few markets they serve. Only then, they can spot emerging opportunities before other ventures do so and, combined with their knowledge about the market structure and suppliers, build up sustaining competitive advantages (Oviatt & McDougall, 1994). Additionally, “learning orientation builds on the notion that a learning organization improves its understanding of the environment over time” (Hult & Ferrell, 1997: 101), indicating the incremental process of knowledge acquisition. Thus, Export-Start-ups might be most in line with incrementally internationalizing enterprises described by Johanson

and Vahlne (1977) and, therefore, tend to learn more intensively about existing markets before increasingly committing to additional foreign markets. Therefore, we hypothesize that:

*Hypothesis 4: The higher the learning orientation of a firm, the higher the likelihood of an Export Start-up as INV type.*

## METHOD

### Sample

To collect data, we conducted a questionnaire-based statistical survey of young German technology firms from four different future-oriented technology areas: Nanotechnology, Biotechnology, Microsystems and Renewable Energies.<sup>2</sup> From February until April 2007 we sent out questionnaires to the total population of German firms from these technology fields.

Questionnaires were sent to CEOs, export managers, or owners of the firms as they are perceived to have the most profound knowledge about the internationalization practices and strategic decisions of the firm. In total we sent out N=1,944 questionnaires. The response rate was about 17%, which is a total number of 340 questionnaires. As we surveyed the total populations of German Nanotechnology (N=305), Biotechnology (N=526), Microsystems (N=292) and Renewable Energies (N=821) firms, our sample included both international firms and firms only active in the domestic market. Due to the research aim of our study we had to eliminate those firms with explicit activities restricted to the domestic market only (n=87). Further, in order to include firms which fulfill the characteristics of an international

---

<sup>2</sup> These technologies are regarded as the key technologies for the future competitiveness of the German economy (Niefert et al., 2006).

new venture, we included only firms which started international activities within ten years after inception (Bürgel & Murray, 2000) into our analyses. Therefore, a sample of  $n=195$  remained for our analyses. The average firm age of the companies in our sample was seven years and the average age at first internationalization was two years with the firms realizing on average 28.6% of their annual sales abroad. The firms in our sample internationalized into twelve foreign markets on average. These statistics show a very proactive internationalization behavior of the young firms in our sample.

We controlled the returned questionnaires for non-response bias according to Armstrong & Overton (1977). We compared early and late respondents in terms of selected constructs. A  $t$ -test showed no significant differences ( $p < .05$  and  $p < .01$ ). Thus, results indicate that differences between respondents were not related to non-response bias.

## **Measurement**

*Types of International New Ventures.* To measure the dependent variable “types of International New Ventures”, two metric scales were applied. First, the percentage of foreign market sales on total sales and second, the number of foreign countries served. This two-scale measurement is an adaptation of Oviatt and McDougall’s model, which employed the coordination of value chain activities abroad and the number of countries involved to distinguish the different INV types from each other. Applying the value chain dimension in order to classify INVs can cause some problems (Jones & Tagg, 1999; Saarenketo et al., 2001). Especially young firms pursue individual combinations of foreign activities and international development paths, making it difficult to classify them according to value chain criteria (Jones, 1999). Moreover, a classification regarding the mere number of value chain activities does not account for the relative importance of activities. An INV may be globally acting and at the same time only coordinating few but important activities abroad (such as

logistics, marketing, R&D etc.). To avoid these measurement problems and to get a more meaningful and established scale for the international intensity, the value chain dimension was changed into the percentage of foreign market sales to total sales in this study.<sup>3</sup>

Another challenge that occurs when adapting the Oviatt & McDougall model is the nonexistence of a defined threshold, differentiating between the INV types on the scales. Also, the thresholds for each, scale and scope of internationalization, used by other authors vary largely. Kanndasaami & Huang (2000) define a start-up as global if it realizes at least 10% of its turnover abroad, whereas Johnson (2004) sets the threshold at 20%, Madsen et al. (2000) at 25%, McKinsey (1993) at 75% and Lummaa (2002) even calls for 90% of foreign sales to define a Global Start-up. In terms of the scope of international action it is discussed whether to take the number of different cultures, geographical regions or countries worked in to differ Global Start-ups from other types of INVs. In accordance with Kandasaami (1998), we chose the number of five countries as threshold for the international-scope dimension, meaning that Global Start-ups and Multinational Traders act in at least five foreign countries. The threshold of the international-intensity scale was set at 30%. We conducted a median-split confirming both thresholds as the median of each scale. This supports our decision for the selected measurement for the different types of INVs. Figure 2 presents the chosen classification of INVs employed in this study.

-----  
 Insert Figure 2 around here  
 -----

*Growth orientation.* To form this scale, the items “We will have to internationalize in order to succeed in the future” and “The growth we are aiming at can be achieved mainly

---

<sup>3</sup> The MNE literature oftentimes applies entry mode to measure degree of internationalization (Kuivalainen et al., 2007). We decided against this measurement as rapidly internationalizing small firms are unlikely to make use of foreign direct investments on a notably scale (Dalli, 1994).

---

through internationalization” have been adapted (Autio et al., 2000; Nummela et al., 2004; Yli-Renko., Autio & Tontti, 2002). To increase reliability, the item “The domestic market still offers sufficient growth potential” (Cavusgil, 1984; Johnston & Czinkota, 1985; Kirpalani & Macintosh, 1980; Moini, 1992) was added. The scale is furthermore checked by factor analysis (appendix 1) and Cronbach’s alpha to determine its validity and reliability, showing that all items load on the same factor and that the reliability is sufficient with an alpha of .78.

*Prior international experience of the top management.* Due to the young age at the timing of internationalization, prior international experience of INVs is more likely rooted in the individual level than in the organization itself (Schwens, 2008; Saarenketo et al., 2001) Thus, we decided to measure prior international experience on the individual level rather than on the organizational level as this better applies to INVs. We adapted two questions from Bloodgood et al. (1996). One example is whether or not the person with most international experience has already worked in an internationally operating company. Both items are merged and coded binary (0 if none international experience exists and 1 if at least one aspect was answered positively). This type of coding is applied, since “the relationship between international experience and organizational outcomes is unlikely to be linear across time or across individuals and strategic management literature suggests that exposure to a particular type of experience, regardless of its length, is likely to be consequential” (Reuber & Fischer, 1997: 816).

*Knowledge intensity.* To measure the knowledge intensity we adapted a three-item scale developed by Yli-Renko et al. (2002). Questions yielded the technological excellence of the firm such as “we are known for our excellent technological expertise and knowledge.” We applied multi-item measurement covering the different aspects of knowledge intensity. The items highly load on one factor delivering a scale with an alpha of .78.

---

*Learning orientation* is measured by a three-item scale. One example item is “Learning in this organization is viewed as key to organizational survival” (Emden et al., 2005; Hult & Ferrell, 1997; Sinkula et al., 1997). All items load on one factor. The high Cronbach’s alpha value of .83 shows internal consistency and, therefore, underlines the formation of this scale.

*Control Variables.* We included international network contacts (Oviatt & McDougall, 2005; Selnes & Sallis, 2003), firm age (McNaughton, 2003; Preece et al., 1998) and the team size at foundation (McNaughton, 2003; Shrader et al., 2000) as control variables into our analyses. These variables have a high importance in prior entrepreneurial research (e.g. Chandler & Hanks, 1994). We measure the international network by combining two questions about the number of foreign partnerships and the quality of network ties a new venture has established with foreign companies (SMEs, or MNEs respectively). This measurement is adapted from various authors (Baum, Calabrese & Silverman, 2000; Reuber & Fischer, 1997). To determine the total number of partnerships a new venture holds abroad, the two measurements are merged into one index. Age and founding team size can be seen as proxies for the firm’s assets and resource endowment which is particularly important when it comes to the early internationalization discussion of international new ventures. We measured these items by asking for the year of foundation and the number of persons involved as main decision makers in the foundation process.

-----

Insert Table 1 around here

-----

## **ANALYSIS AND RESULTS**

To examine our hypotheses we applied multinomial logistic regression (MLR) analysis. This procedure is a variant of maximum likelihood-based estimations which is employed if the dependent variable is categorical and has more than two values. MLR

requires one of the dependent variable categories to be selected as reference group. Effects are then computed and assessed in comparison to the reference group. MLR shows how the chance of belonging to another group than the reference category is affected by the independent variables. Thus, MLR is an appropriate means in order to examine which organizational characteristics distinguish between the different types of INVs.

Before conducting multinomial regression analysis, we tested the independent variables for multicollinearity by calculating zero order correlations as well as variance inflation factors (VIF) for all independent variables (table 2). The results show no significant risk for multicollinearity since no correlation exceeds 0.7 (Anderson, Sweeney & Williams, 1996) and all VIF values stay below 4.0 (Neter, Wassermann & Kutner, 1983) and even below 2.5 (Allison, 1999).

As the measures applied in our study are self-reported and collected from an identical source, there could be a problem of common method variance, in which a bias in the source might contaminate all measures in the same direction. For this reason it was critical to identify whether there is a systematic error in the data. In order to examine the extent of common method variance in our data, we followed Podsakoff and Organ (1986) using the Harman's one-factor test. We executed a principal component factor analysis based on the variables of interest. This analysis revealed three factors with an eigenvalue greater than 1, which together account for 49.0% of the total variance. The presence of several factor loadings, combined with the relatively low percentage of the three factor – only 19%, 16% and 14%, respectively – indicate that the data do not suffer from common method variance. A substantial amount of common method variance is present, either if a single factor will emerge from the factor analysis, or if one general factor will account for the majority of the covariance among the variables (Podsakoff & Organ, 1986; Podsakoff, MacKenzie & Lee, 2003).

---

Table 3 shows the results of the MLR. As can be seen, the employed determinants significantly contribute to the prediction of the different INV types, highlighted by a pseudo R-square value of 0.36.

-----  
Insert Table 2 around here  
-----

Results support hypothesis 1 arguing that the higher the growth orientation of the firm, the higher the likelihood of a Global Start-up as INV type. INVs have a significantly higher chance of becoming a Global Start-up as opposed to becoming an Export-Start-up if growth orientation is high (Table 3,  $b = 0.92$ ,  $p \leq 0.01$ ). Results further show that this is also true compared to Multinational Traders ( $b = 0.87$ ,  $p \leq 0.01$ ), but not compared to Geographically Focused Start-ups ( $b = 0.26$ , n.s.). Therefore, a growth oriented behavior does not differentiate Global Start-ups significantly from all other INV-types, but only from Export-Start-ups and Multinational Traders. Hypothesis 2 suggests that the higher the prior international experience of the management, the higher the likelihood of a Global Start-up as INV type. This hypothesis can be accepted ( $b = 0.99$ ,  $p \leq 0.01$ ). Thus, the result is consistent with the assumption that Global Start-ups will have a particularly high need for and benefit from internationally experienced managers. Prior international experience of the management reduces uncertainty and, therefore, the risk of entering many foreign markets on a high scale.

Further, results show support for hypothesis 3 indicating that the higher the knowledge intensity, the higher the likelihood of becoming a Geographically Focused Start-up. Compared to Export-Start-ups, Geographically Focused Start-ups have a more distinct knowledge intensity ( $b = 1.36$ ,  $p \leq 0.01$ ). However, results reveal that knowledge intensity is also positively related to Multinational Traders and global start-ups. This needs to be taken into consideration when interpreting the results for hypothesis 3.

---

Finally, the results support hypothesis 4. The higher the learning orientation, the higher the likelihood of becoming an Export Start-up. A high learning orientation decreases the propensity of INVs to act on a high international scale and scope. Thus, we argue that INVs which are characterized by a high learning orientation are more likely to act only on a small international scale and scope in the first years of their existence, indicating a rather incremental process of the internationalization of these new ventures.

The control variable firm age shows a significant positive relation with Global Start-ups if compared to Export Start-ups. Thus, the older the firm, the higher the likelihood of becoming a Global Start-up. This is intuitively plausible as firms increase their resource fungibility with growing firm age allowing to internationalize on a broader scale and scope. In contrast to this, the size of the founding team does not have a significant impact on the chance of becoming a distinct INV type. Thus, all INV types seem to be rather homogenous in terms of their founding team size. Regarding networks our results show small, but significant positive values for all INV types compared to Export Start-ups. Thus, networks allow for international expansion in terms of scope and scale, which is in line with prior research (e.g. Weerawardena, Mort, Liesch & Knight, 2007).

-----

Insert table 3 around here

-----

## **DISCUSSION**

The aim of this paper was to elaborate the determinants of the different types of INVs, namely Export Start-up, Geographically Focused Start-up, Multinational trader, and Global Start-up. Major determinant factors have been derived from INVT and were tested by using multinomial regression analysis on a sample of 195 German high-tech firms. By doing so, we demonstrated that the determinants impact the four INV types differently. This finding is of

major importance, as we showed that INVs are a rather heterogeneous than a homogenous group of enterprises and that, depending on their scale and scope of international activities, different aspects prevail. Global Start-ups, for example, predominantly depend on a very growth oriented and internationally experienced management to succeed in international markets. Establishing such an INV is connected with high impediments requiring a proactively spirited management team. In addition to this, our results show that prior international experience is pivotal for becoming a Global-Start-up in order to overcome the risks due to extensive internationalization at an early stage.

A first foray into foreign markets is a risky venture per se. Yet, this risk increases if foreign markets account for a large proportion of total revenues. In such a constellation, failures in international markets will more likely lead to total failure of the firm. Knowledge about foreign market structures, intercultural issues and legal practices may countervail this risk. Managers having worked in an international context are more likely to have built up such international experience allowing the firm to operate more securely in an otherwise unstable environment. Besides reducing risks of failure, prior international experience allows managers to exploit growth opportunities more efficiently. Our results show evidence that INV types with strong international intensity - Global and Geographically Focused Start-ups - primarily have internationally experienced managers. One may conclude that international experience allows for a more efficient market penetration and exploitation of growth opportunities as foreign business practices and customer needs are better known and understood. Thus, rapid international growth at a high scale is forwarded.

Regarding knowledge intensity we were able to contribute to the discussion about the impact of knowledge intensity on early internationalization (Autio, 2005) by emphasizing that the influence among internationalization behavior is not the same for all kinds of INVs. We hypothesized that knowledge intensity mainly drives INVs to act geographically focused. This

assumption is based on the rationale that firms catering knowledge intensive products suffer from a trade-off between costs of control and need for expansion. Even though our results support this statement, our findings merit further comments.

While knowledge intensity has a positive impact on the likelihood of becoming a Geographically Focused Start-up, this is also true for Global Start-ups and, on a lower significance level, for Multinational Traders. Moreover, if Geographically Focused Start-ups are chosen as reference category, we do not find significant differences for the likelihood of becoming a Multinational Trader or a Global Start-up, respectively. Thus, knowledge intensity does not deter INVs from entering multiple countries, while intensifying the amount of international sales. However, knowledge intensity is more positively related to the formation of Geographically Focused Start-ups than to Multinational Traders and Global Start-ups, which is indicated by higher significance levels and a stronger coefficient. Thus, even though we do not find significant differences, our analysis indicates that knowledge intensity is particularly related to Geographically Focused Start-ups. On the one hand, a focused international expansion allows knowledge intensive firms to evade product piracy and patent infringement and helps to restrict costs of control. On the other hand, this kind of expansion permits to realize revenues from international markets and, thus, to amortize research and development costs connected with knowledge intensity. Therefore, a geographically focused internationalization strategy seems to be most appropriate to cope with the trade-off between costs of control and need for expansion.

Multinational Traders have the most in common with Export Start-ups, which is also postulated by Oviatt & McDougall (1994). Both types show a similarly growth oriented and internationally experienced management. However, Export Start-ups are significantly more devoted to learning than Multinational Traders, as their higher learning orientation indicates. Even though learning orientation is often associated with a higher propensity to

internationalize (e.g. Oviatt & McDougall, 2005; Chetty & Campbell-Hunt, 2004), it seems to be rather restricting than facilitating international expansion. One may conclude that especially Export Start-ups need to learn intensively in order to better serve the few markets they are operating in and to identify opportunities more efficiently. Only this allows them to achieve sustainable firm development and competitive advantages. Whereas Export Start-ups may concentrate their learning efforts on few markets, which they develop incrementally, other INVs, especially Global Start-ups, venture into foreign markets at a high pace. Learning binds resources just as international expansion does. As INVs are typically characterized by a limited resource endowment, a high degree of learning and global expansion may be contradictory rather than complementary in early years. Export Start-ups need to continuously search and discover imbalances of resources. For them “sustained competitive advantage depends on 1) unusual abilities to spot and act on [...] emerging opportunities before increased competition profits in markets they had previously established, 2) knowledge of markets and suppliers, and 3) the ability to attract and maintain a loyal network of business associates” (Oviatt & McDougall, 1994: 58). To achieve these competitive advantages, a high learning orientation is essential for Export Start-ups. On the opposite, Global Start-ups act proactively to acquire resources and to sell outputs wherever in the world they have the greatest value. A strong degree of learning orientation tracking and tracing new opportunities in already established markets is at conflict with such strategy. Therefore, Global Start-ups, as well as Multinational Traders and Geographically Focused Start-ups are less likely to be as learning oriented as Export Start-ups, which have to devote more time and resources to intensive learning about the markets they are serving.

In summary, these findings may help practitioners to find the most appropriate internationalization strategy according to the firm’s profile and advise researchers (at least) to control for the types of INVs since results may vary depending on which INV types are

predominantly observed. Our results underpin the pivotal impact of the management team for international expansion in terms of both, attitude towards growth and personal capabilities such as prior international experience. Management teams combining these assets will be best prepared for the challenges of acting on a global scale at a young firm age. Furthermore, firms with very knowledge intensive products or services are well advised to foster international expansion in a concentrated manner and not geographically dispersed.

### **Limitations and Implications for Further Research**

As is the case for most empirical studies, several limitations apply to our study as well. First, as internationalization is more a process than a state, we face measurement problems of the INV phenomenon as we are lacking longitudinal data. Longitudinal research designs could delineate changes over time, and show if INVs develop gradually from one type to another, or if the choice of one type is stable over time. Moreover, changes in international activities' scale and scope or management's cognitions can only be analyzed in depth, as well as their impact on the long-term survival and development of the firm, when powerful longitudinal data is available. This would help to identify if change in the determinants really results in a change of the INV type, which may prove the results found in this study. Second, even though including multiple technologies, this study was only focused on German technology-based companies and, therefore, is lacking a comparative value on an international scale. Thus, we cannot state if influential factors vary across different countries or cultural regions. Third, an observation of the cultural distance between INVs' country of origin and the focal markets could delineate differences between the INV types. Companies acting in a very restricted geographical area (e.g. Europe) do not have to cope with such psychically distant cultures, laws and business practices as firms acting in geographical as well as cultural distant markets. Such firms may be more dependent on prior experiences of their founders than INVs – mainly

acting in culturally close areas. Another limitation of this study can be seen in the small group size of the INV types. Two of the groups, namely the Multinational Traders and the Geographically Focused Start-ups, only account for 26 companies, resulting in less significant results. Therefore, larger samples are needed in future research in order to compare the four INV types. However, our results have shown that differing between the INV types yields more idiosyncratic results. Future research should elaborate on the different types of INVs in more detail and in order to achieve a more fine-grained picture of the rather complex phenomenon of international new ventures.

## REFERENCES

- Acedo, F. J. & Jones, M. V. (2007). Speed of internationalization and entrepreneurial cognition: Insights and a comparison between international new ventures, exporters and domestic firms. *Journal of World Business*, 42: 236-252.
- Allison, P. (1999). *Multiple Regression: A Primer*. Thousand Oaks: Pine Forge.
- Anderson, D. R., Sweeney, D. H. & Williams, T. A. (1996). *Statistics for business and economics*. West Publishing Company, St. Paul.
- Armstrong, J. S. & Overton, T. S. (1977). Estimating non-response bias in Mail surveys. *Journal of Marketing Research*, 14: 396-402.
- Autio, E. (2005). Creative Tension: the significance of Ben Oviatt's and Patricia McDougall's article "toward a theory of international new ventures". *Journal of International Business Studies*, 36: 9-19.
- Autio, E., Sapienza, H. J. & Almeida, J. G. (2000). Effects of Age at Entry, Knowledge Intensity, and Imitability on International Growth. *Academy of Management Journal*, 43(5): 909-924.
- Baum, J. A. C., Calabrese, T. & Silverman, B. S. (2000). Don't go it alone: Alliance network composition and startups' performance in Canadian biotechnology. *Strategic Management Journal: Special Issue: Strategic Networks*, 21(3): 267-294.
- Bell, J., McNaughton, J., Young, R. & Crick, D. (2003). Towards an integrative model of small firm internationalization. *Journal of International Entrepreneurship*, 1: 339-362.
- Bloodgood, J. M., Sapienza, H. J. & Almeida, J. G. (1996). The internationalization of high-potential U.S. ventures: antecedents and outcomes. *Entrepreneurship Theory and Practice*, 20(4): 61-76.
- Bürgel, O., Murray, G., Fier, A., Licht, G. & Nerlinger, E. (1998). The Internationalisation of British and German Start-Up Companies in High Technology Industries. ZEW Discussion Papers 98-34, ZEW - Zentrum für Europäische Wirtschaftsforschung / Center for European Economic Research.
- Bürgel, O. & Murray, G. C. (2000). The International Market Entry Choices of Start-Up Companies in High-Technology Industries. *Journal of International Marketing*, 8 (2), 33-62.
- Cavusgil, S. T. (1984). "Organizational Characteristics Associated with Export Activity." *Journal of Management Studies*, 21(1): 3-22.
- Chandler, G. N. & Hanks, S. H. (1994). Market attractiveness, resource-based capabilities, venture strategies and venture performance. *Journal of Business Venturing*, 9: 331-349.
- Chetty, S. & Campbell-Hunt, C. (2004). A strategic approach to internationalization: A traditional versus a "Born-Global" approach. *Journal of International Marketing*, 12(1): 57-81.
- Cohen, W. M. & Levinthal, D. A., (1990). Absorptive Capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35: 128-152.
- Coviello, N. E. & McAuley, A. (1999). Internationalisation and the smaller firm: A review of contemporary empirical research. *Management International Review*, 39(3): 223-256.

- Covin, J. G., Slevin, D. P. & Covin, T. J. (1990). Content and performance of growth-seeking strategies: A comparison of small firms in high- and low-technology industries. *Journal of Business Venturing*, 8: 391-412.
- Dalli, D. (1994). The exporting process. The evolution of small and medium-sized firms towards internationalization. *Advances in International Marketing*, 6: 107-115.
- Day, G. S. (1994). The capabilities of market-driven organizations. *Journal of Marketing*, 58(4): 37– 52.
- Dimitratos, P. & Jones, M. V. (2005). Future directions for international entrepreneurship research (Guest Editorial). *International Business Review*, 14: 119-128.
- Emden Z., Yaprak, A. & Cavusgil, S.T. (2005). Learning from experience in international alliances: antecedents and firm performance implications. *Journal of Business Research*, 58 (7): 883-892.
- Eriksson, K., Johanson, J.,Majkgård, A. & Sharma, D. 1997. Experiential knowledge and cost in the internationalization process. *Journal of International Business Studies*, 28: 337–360.
- Gilbert, B. A., McDougall, P. P. & Audretsch, D. B. (2006). New venture growth: A review and extension. *Journal of Management*, 32; 926-950.
- Hult, G. T. M & Ferrell, O. C. (1997). Global organizational learning capacity in purchasing: Construct and measurement. *Journal of Business Research*, 40(2): 97-111.
- Johanson, J. & Vahlne, J.-E. (1977). The internationalization process of the firm : A model of knowledge development and increasing foreign market commitment. *Journal of International Business Studies*, 4: 20-29.
- Johnson, J. E. (2004). Factors influencing the early internationalization of high technology start-ups: US and UK evidence. *Journal of International Entrepreneurship*, 2:139-154.
- Johnston, W. J.,Czinkota, M. R. (1985). Export Attitudes of Industrial Manufacturers, *Industrial Marketing Management*, 14(2): 123-132.
- Jones, V. M. (1999). The internationalization of small high-technology firms. *Journal of International Marketing*, 7(4): 15-41.
- Jones, V. M. & Tagg, S. K. (1999). International Growth and Development of Small Firms: Patterns of Start-up and Internationalization. In the CD-Rom Proceedings of 25th EIBA Conference, UMIST, Manchester, December 12-14, 1999.
- Kandasaami, S. (1998). Internationalisation of small- and medium-sized born global firms. A conceptual model. Research paper, Graduate School of Management, University of Western Australia.
- Kandasaami, S. & Huang, X.(2000) : International marketing strategy of SMEs. A comparison of born-global vs. non born-global firms in Australia, Paper presented at the ICSB Conference, Brisbane, June 2000.
- Kirpalani, V.H. & Macintosh, N.B. (1980). International Market Effectiveness of Technology-Oriented Small Firms. *Journal of International Business Studies* 11(3): 81-90.
- Knight, G. A. & Cavusgil, S. T. (1996). The born global firm: a challenge to traditional internationalization theory. *Advances in International Marketing*, 8: 11-26.

- 
- Kuivalainen, O., Sundquist, S. & Servais, P. (2007). Firms' degree of born-globalness, international entrepreneurial orientation and export performance. *Journal of World Business*, 42: 253-267.
- Kundu, S. U. & Katz, J. A. (2003). Born-International SMEs: Bi-Level impacts of resources and intentions. *Small Business Economics*, 20: 25-47.
- Lummaa, H. J. (2002). Internationalization behaviour of Finnish born global companies, Master Thesis, Helsinki University of Technology.
- Madsen, T. K. & Servais, P. (1997). The internationalization of born globals: an evolutionary process? *International Business Review*, 6(6): 561-583.
- Madsen, T. K. & Rasmussen, E. & Servais, P. (2000). Differences and similarities between born globals and other types of exporters. *Advances in International Marketing*, 10: 247-265.
- McDougall, P. P., Oviatt, B. M. & Shrader, R. C. (2003). A comparison of international and domestic new ventures. *Journal of International Entrepreneurship*, 1: 59-82.
- McKinsey and Co. (1993). Emerging exporters: Australia's high value-added manufacturing exporters. Melbourne: McKinsey and Co., Australian Manufacturing Council.
- McNaughton, R. B. (2001). The export mode decision-making process in small knowledge-intensive firms. *Market Intelligence and Planning*, 19: 12-20.
- McNaughton, R. B. (2003). The number of export markets that a firm serves: Process models versus the born-global phenomenon. *Journal of International Entrepreneurship*, 1: 297-311.
- Moini, A.H. (1992), A study of exporting and non-exporting small manufacturing firms, *Journal of Business and Entrepreneurship*, 4(3):77-88.
- Neter J., Wassermann, W. & Kutner, M. (1983). *Applied Linear Regression Models*. Homewood, IL: Irwin.
- Niefert, M., Metzger, G., Heger, D. & Licht, G. (2006). Hightechgründungen in Deutschland: Trends und Entwicklungsperspektiven. ZEW Mannheim. <ftp://ftp.zew.de/pub/zew-docs/gutachten/hightechgruendungen.pdf>.
- Nummela, N., Saarenketo, S. & Puumalainen, K. (2004). Global mindset - A prerequisite for successful internationalisation? *Canadian Journal of Administrative Sciences*, 21(1): 51-64.
- Oviatt, B. M. & McDougall, P. P. (1994). Toward a theory of international new ventures. *Journal of International Business Studies*, 25(1): 45-64.
- Oviatt, B. M. & McDougall, P. P. (1995). Global start-ups: entrepreneurs on a worldwide stage. *Academy of Management Executive*, 9(2): 30-43.
- Oviatt, B. M. & McDougall, P. P. (2005). Defining international entrepreneurship and modelling the speed of internationalization. *Entrepreneurship Theory & Practice*, 29(5): 537-553.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y. & Podsakoff, N. P. 2003. Common Method Biases in Behavioral Research: A critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology*, 88, 879-903.

- Podsakoff, P. M., & Organ, D. W. 1986. Self-reports in Organizational Research: Problems and Prospects. *Journal of Management*, 12/4, 531-544.
- Preece, S. B., Miles, G. & Baetz, M. C. (1998). Explaining the international intensity and global diversity of early-stage-technology-based firms. *Journal of Business venturing*, 14: 259-281.
- Pulkkinen, J. & Larimo, J. (2007). Variety in International New Ventures: Typological Analysis and Beyond. *Journal of Euromarketing*, 16(1): 37-57.
- Reuber, A. R. & Fischer, E. (1997). The influence of the management team's international experience on the internationalization behaviour of SMEs. *Journal of International Business Studies*, 28(4): 807-825.
- Rialp, A., Rialp, J. & Knight, G. A. (2005). The phenomenon of international new ventures, global start-ups, and born-globals: What do we know after a decade (1993-2003) of exhaustive scientific inquiry? *International Business Review*, 14: 1-20.
- Saartenketo, S., Kuivalainen, O. & Puumalainen, K. (2001). Emergence of born global firms: Internationalization patterns of infocom SMEs as an example. 4<sup>th</sup> McGill Conference on International Entrepreneurship, University of Strathclyde, Glasgow, UK, Vol. 2: 442-468.
- Sapienza, H. J., De Clercq, D. D. & Sandberg, W. R. (2005). Antecedents of international and domestic learning effort. *Journal of Business Venturing*, 20: 437-457.
- Sapienza, H. J., Autio, E., George, G. & Zahra, S. A. (2006). A capabilities perspective on the effects of early internationalization on firm survival and growth. *Academy of Management Review*, 31(4): 914-933.
- Schwens, C. (2008). *Early internationalizers: Specificity, learning and performance implications*. Doctoral dissertation. Rainer Hampp, Munich.
- Selnes, F. & Sallis, S. (2003). Promoting relationship learning. *Journal of Marketing*, 67(3), 80-89.
- Shrader, R. C., Oviatt, B. M. & McDougall, P. P. (2000). How New Ventures Exploit Trade-Offs among International Risk Factors: Lessons for Accelerated Internationalization of the 21st century. *Academy of Management Journal*, 43(6): 1227-1247.
- Sinkula, J. M., Baker, W. E. & Noordewier, T. (1997). A framework for market-based organizational learning: Linking values, knowledge, and behavior. *Journal of the Academy of Marketing Science*, 25(4): 305-318.
- Weerawardena, J., Mort, G. S., Liesch, P. W. & Knight, G. (2007). Conceptualizing accelerated internationalization in the born global firm: A dynamic capabilities perspective. *Journal of World Business*, 42, 294-306.
- Yli-Renko, H., Autio, E. & Tontti, V. (2002). Social capital, knowledge, and the international growth of technology-based new firms. *International Business Review*, 11: 279-304.
- Zahra, S. A. (2005). A theory of international new ventures: a decade of research. *Journal of International Business Studies*, 36: 20-28.
- Zahra, S. A. & George, G. (2002) International entrepreneurship: The current status of the field and future research agenda. in Hitt, M., Ireland, R., Camp, M. & Sexton, D. (Eds.), *Strategic leadership: Creating a new mindset*, Blackwell, London: 225-288.

---

**Tables and Figures****FIGURE 1****The Classification of International New Ventures**

Percentage of foreign sales on total sales	high	<b>Geographically focussed Start-up</b>	<b>Global Start-up</b>
	low	<b>Export Start-up</b>	<b>Multinational Trader</b>
		few	many
		Number of countries involved	

**FIGURE 2**  
**Specified Classification of International New Ventures**

Percentage of foreign sales on total sales	high	<b>Geographically Focussed Start-up</b> (n = 26)	<b>Global Start-up</b> (n = 84)
	low	<b>Export Start-up</b> (n = 59)	<b>Multinational Trader</b> (n = 26)
		few	many
		Number of countries involved	

TABLE 1

## Means, Standard Deviations, Variance Inflation Factors (VIF) and Correlations

Variables	Mean	s.d.	VIF	Growth Orientation	Prior International Experience	Knowledge Intensity	Learning Orientation	International Network	Firms Age
Growth Orientation	3.13	1.12	1.07	1					
Prior International Experience	0.34	0.47	1.02	0.04	1				
Knowledge Intensity	4.27	0.67	1.21	0.12 (*)	0.07	1			
Learning Orientation	4.37	0.70	1.22	-0.02	0.08	0.31 (**)	1		
International Network	4.53	21.60	1.06	0.05	0.03	0.08	0.03	1	
Firms Age	9.23	6.66	1.07	0.17 (**)	-0.04	0.00	-0.13 (*)	0.03	1
Team Size at Found	4.05	9.08	1.05	0.09	0.10	0.02	0.03	0.00	0.03

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

† Correlation is significant at the 0.10 level (2-tailed).

**TABLE 2**  
**Multinomial Regression Results**

Reference category	Export Start-ups			MNT		GFS
With	MNT	GFS	GS	GFS	GS	GS
Constant	-1.58 ***	0.00	-0.47	1.58 **	1.10 **	-0.48
Age	0.07 *	-0.07 **	0.08 ***	-0.14 ***	0.01	0.15 ***
Team Size at Found	0.05	-0.06 *	0.04	-0.11	-0.01	0.10
Networks	0.08 **	0.01 *	0.08 **	-0.07	0.00	0.07
Growth Orientation	0.05	0.66 ***	0.92 ***	0.61 **	0.87 ***	0.26
Prior International Experience	0.49	0.42 **	0.99 ***	-0.07	0.50	0.56
Knowledge Intensity	0.77 *	1.36 ***	0.75 **	0.59	-0.02	-0.61
Learning Orientation	-0.67 *	-0.68 *	-0.71 **	-0.01	-0.04	-0.03

Overall model fit:  $-2LL = 414.724$ ,  $\text{Chi-square} = 77.377$ ,  $\text{AIC} = 462.724$ , Nagelkerke pseudo R-square = .36

\*  $p < .10$

\*\*  $p < .05$

\*\*\*  $p < .01$

Unstandardized coefficients are reported

## Appendix

### APPENDIX A

#### Factor Analysis

Item	Factor			
	1	2	3	4
We will have to internationalize in order to succeed in the future			0,65	
The growth we are aiming at can be achieved mainly through internationalization			0,67	
The domestic market still offers sufficient growth potential (recoded)			0,89	
How many cooperative relations / partnerships does your company hold with SME's abroad				0,66
How many cooperative relations / partnerships does your company hold with MNE's abroad				0,42
We are known for our excellent technological expertise and knowledge		0,77		
Knowledge-intensity is characteristic of our company		0,81		
Our Products and services have a strong knowledge-component		0,70		
Learning in this organization is viewed as key to organizational survival	0,85			
The sense around here is that our ability to learn is key to remaining competitive	0,93			
In our management it is the predominant opinion, that the learning of our employees is an investment rather than an expenditure	0,61			
Eigenvalue	3,03	2,21	1,70	1,20
cumulated % variance		53,23		

Note: Rotation method: Varimax