



2006

**Why Butterflies Don't Leave.
Locational behaviour of entrepreneurial firms**

by

**Erik Stam
University of Cambridge
Utrecht University**

Number of Pages: 25

The *Papers on Entrepreneurship, Growth and Public Policy* are edited by the
Group Entrepreneurship, Growth and Public Policy, MPI Jena.
For editorial correspondence,
please contact: egppapers@econ.mpg.de

ISSN 1613-8333
© by the author

Max Planck Institute of Economics
Group Entrepreneurship, Growth and
Public Policy
Kahlaische Str. 10
07745 Jena, Germany
Fax: ++49-3641-686710

Why Butterflies Don't Leave. Locational behavior of entrepreneurial firms*

Erik Stam

University of Cambridge, Cambridge, United Kingdom

&

Urban and Regional research centre Utrecht (URU), Faculty of Geosciences, Utrecht University,
PO Box 80115, 3508 TC Utrecht, The Netherlands

&

Max Planck Institute of Economics - Entrepreneurship, Growth and Public Policy Group,
Jena, Germany

Abstract: Entrepreneurship is an important process in regional economic development. Especially the continued growth of a minority of new firms is of major significance to the commercialization of new ideas and employment growth. These growing new firms are transforming on a structural basis, like caterpillars turning into butterflies. However, like butterflies they are at risk to leave their region of origin for better places. This paper analyses how and why the spatial organization of firms develops subsequent to their start-up. A new conceptual framework and an empirical study of the life course of entrepreneurial firms are used to construct a theory on their locational behavior that explains that behavior as the outcome of a process of initiatives taken by entrepreneurs, enabled and constrained by resources, capabilities and relations with stakeholders within and outside of the firm. This study shows that entrepreneurs decide whether or not to move their firm outside of their region of origin for different reasons in distinct phases of the firm life course. Being embedded in social networks, for example, is an important constraint on locational behavior during the early life course of a firm, but over time this becomes less important and other mechanisms like sunk costs increasingly determine the locational behavior of fast-growing firms. The development of the spatial organization is also of major importance: when a multilocal spatial organization has been realized, it is much easier to move the headquarters to another region. The spatial organization of entrepreneurial firms co-evolves with the accumulation of their capabilities. A developmental approach incorporating evolutionary mechanisms and recognizing human agency provides new insights into the age-old study of firm location.

Key Words: location, location behavior, spatial organization, theory of the firm, entrepreneurial firms, entrepreneurship, firm growth, regional economic development

JEL classifications: D21, L14, L22, M13, R11, R30

* Prior versions of this paper have been presented at the workshop "Dynamics of Firm Location", University of Groningen (The Netherlands); at the Max-Planck Institute of Economics – Evolutionary Economics Group (Jena, Germany); at the 4th European Meeting on Applied Evolutionary Economics (EMAE), Utrecht University (The Netherlands); and at the 45th Congress of the European Regional Science Association, Vrije Universiteit Amsterdam (The Netherlands). Thanks to those who participated in these meetings for their comments. The paper also benefited from the comments of Veronique Schutjens, Koen Frenken, Ron Boschma, Erik Monsen, Egbert Wever, and three anonymous reviewers. The research for this paper was funded by the Urban and Regional research centre Utrecht (URU), Utrecht University, The Netherlands. As usual, all errors are the responsibility of the author.

Introduction

In debates on indigenous economic development the role of entrepreneurship has increasingly been emphasized (Malecki 1997; Glasmeier 2000; Hart 2003; Nijkamp 2003). Most studies argue that a new firm is highly likely to start in the home region of its founder (Mueller and Morgan 1962; Reynolds and White 1997; Figueiredo et al. 2002; Hanson 2003), and that it is equally likely to stay in this region (Katona and Morgan 1952; Ellinger 1977; Pellenbarg et al. 2002). Furthermore, it is assumed that new firms are more important job creators than large established firms, and that the jobs they create in their region of origin are likely to be more permanent than the ones created by large firms whose interests often demand a greater mobility on the part of their workforce. However, empirical research indicates that it is not new firms (which are often little more than self-employed individuals) as such that are the key; but rather the relatively small number of fast-growing new firms that account for the lion's share of net new job creation (Kirchhoff 1994; Storey 1997; Schreyer 2000; Buss 2002). These firms are successful in commercializing new ideas on a large scale. It is also likely that they are a more significant source of uneven regional development than new firm formation per se, since geographically speaking they are spread more unevenly (Stam 2005) and appear to have a stronger effect on employment rates. The policy question that this raises is whether these highly dynamic fast-growing firms are a secure source of economic development, in other words, whether they stay in their region of origin, or are they likely to mimic their large counterparts and become increasingly 'footloose'¹. They are neither small (anymore) nor (yet) large, which triggers questions about their changing (spatial) nature: they undergo structural change and are changing, so to speak, from caterpillars into butterflies. This makes them highly interesting research objects, both from a regional economic development point of view (Markusen 1996; Glasmeier 2000) and at the micro-level, in other words, at the level of entrepreneurship (Kenney and Patton 2005) and the firm (Maskell 2001; Taylor and Asheim 2001).

The central research question in this paper is: how and why does the spatial organization of firms develop during distinct phases in their early life course? The purpose of this paper is to improve our understanding of the locational behavior of entrepreneurial firms. Locational behavior involves locational flexibility (relocation) and locational adjustment (opening and closure of branches) of firms. We show how the changing characteristics of an entrepreneurial firm, its external relationships, the changing role of the entrepreneur and his or her personal relationships affect the spatial organization of the firm. The locational behavior of entrepreneurial firms is explained by their willingness and ability to change the spatial organization during distinct phases in their early life course. This study shows that the spatial organization of entrepreneurial firms co-evolves with the accumulation of their capabilities.

There is no complete understanding of how and why firms develop (Geroski 2001), and we know even less about the development of the spatial organization of fast-growing entrepreneurial firms (O'Farrell and Hitchens 1988; Beyers 2002). But although there is as yet no well developed-theory on the development of the spatial organization of entrepreneurial firms, there are a number of studies that may provide valuable insight into the dynamic relationship between these firms and their regional environment. Existing studies on entrepreneurship – the process of starting and continuing to expand new businesses (Hart 2003, 5) – and internationalization are used to construct a model of the development of the spatial organization of entrepreneurial firms. This model explicitly takes into account the changing spatial nature of firms. I compare the model with the results of empirical research on the life course of young fast-growing firms. In this empirical research I describe and explain the changing spatial organization of the firms. The conceptual building blocks and the outcomes of the empirical research are used to construct a theory on the locational behavior of entrepreneurial firms.

¹ Like the well-known example of Lycos moving from Pittsburgh to Boston (Florida 2002, 216-217).

The paper starts with a conceptualization of entrepreneurial firms and their spatial organization, and a model of the development of the spatial organization of entrepreneurial firms. In subsequent sections I present the research design and methods, and explore and explain the development of the spatial organization of entrepreneurial firms, which is confronted with the earlier constructed model of the development of the spatial organization. A section that develops a theory of locational behavior of entrepreneurial firms follows this. In the final section I discuss the implications of this study.

Conceptualizing Entrepreneurial Firms and their Spatial Organization

Most existing theoretical studies, in particular those that investigate firm location, fail to take the changing nature of the entrepreneurial firm and the development processes underlying this changing nature into account. This failure can be traced back to three dominant theories, namely neo-classical economic theory (Moses 1958), transaction cost theory (McCann and Sheppard 2003), and the behavioral theory of the firm (Carr 1983). The former two theories are essentially comparative static theories (Rathe and Witt 2001), while the latter, although being dynamic, focuses exclusively on short term decision-making processes (cf. Knudsen 1995). Although location studies have a long tradition, there are areas that are yet to be examined. This would involve a life course approach to the analysis of the development of the spatial organization of entrepreneurial firms. Recently, new approaches have been proposed that explain the development of firms as an unfolding process (Garnsey 1998; Rathe and Witt 2001). They do not treat firms as static, unchanging entities, but rather like caterpillars undergoing a structural change and turning into butterflies (Penrose 1995). These approaches shed new light on the theory of the (new) firm and draw attention to the neglected role of the entrepreneur in organizational change. Looking at the entrepreneur at a personal level also means investigating his or her personal network relationships (Granovetter 1995; Johannisson 1995; 2000). To analyze the way entrepreneurial firms grow by co-evolving with others and by forming connections and partnerships with complementary organizations we have to look at their inter-organizational network relationships (Schutjens and Stam 2003). These relationships are considered important elements in explaining the locational behavior of firms, to the extent that recent studies argue that inter-organizational relationships are tying firms to their regional cluster of origin (Van den Berg et al. 2001), either because of localized knowledge networks (Storper 1992; Maskell et al. 1998) or because of the dependence of small firms on regional 'core' firms (Storper and Harrison 1991; Romo and Schwartz 1995).

Development Phases in the Life Course of Entrepreneurial firms

To analyze the effect of the way a firm develops during its life course on its spatial organization, I distinguish a number of distinct periods in that life course: *development phases*, which are not phases in the sense that they represent a predictable sequential process, but which I use instead to structure the development of new (fast-growing) firms. This 'temporal bracketing' in the form of development phases permits "the constitution of comparative units of analysis for the exploration and replication of theoretical ideas" (Langley 1999, 703). The development phases constitute comparative units of analysis for the exploration of the interaction between the development of firms over time and the development of their spatial organization. Insight into the changing nature of firms is a necessary condition for the general purpose of this paper: to improve our understanding of the locational behavior of entrepreneurial firms.

We define the distinct development phases as phases that are dominated by specific processes. The *start-up phase* is defined as the period in which an entrepreneur recognizes a

business opportunity and in which he or she starts to mobilize the resources needed to take advantage of that opportunity. In this phase the firm is often, though not necessarily always, established as a legal entity. The firm emerges out of the combination of the resources to which the entrepreneur has direct access and which he or she is able to mobilize. This resource base has to be deployed in order to realize an opportunity. It comprises the firm's processes (e.g. new product development, sales/marketing, logistics) and asset positions that collectively encompass its competences and capabilities (Teece et al. 2000). The *initial survival phase* is the period after the start-up phase in which, firstly, new value is created and provided to a product-market, and secondly, returns are captured as the outcome of a process of competition. In more abstract terms this means that the firm is able to generate resources through its own productive and commercial activities. Financial resources (profits) are generated as the outcome of the process of competition, which means that the firm is able to survive in a market economy. In order to survive in a market economy in the longer term, entrepreneurs have to solve basic problems: after the necessary resources have been found, the product has to be developed, produced and connected to suppliers and customers. Competences may be created as the outcome of the learning process in solving these problems. When the firm not only survives but also grows, it enters the *early growth phase*, a phase that is defined as the period in which the growth of the firm's (tangible and intangible) assets exceeds a certain (measurable) threshold (cf. Garnsey et al. 2006). This growth can be caused by various processes and in different ways. Two dominant processes in this phase are the profitable exploitation of new market opportunities and the delivery of products to a growing product-market (share). Growth can also be the result of an 'artificial' process of resource acquisition, whereby external investors supply financial resources, expecting superior returns in the future. There is not only progress in the life course of entrepreneurial firms: periods of reversal are common experiences for many new growing firms. In this study I have called these periods the *growth syndrome phases*. We define this phase as a period when the decrease of (tangible and intangible) assets of the firm exceeds a certain (measurable) threshold. Growth syndromes can be caused by a plethora of factors related to the entrepreneur (or entrepreneurial team), the firm and the external environment. Finally, there is a phase that, although it is similar to the early growth phase in a number of respects, is different in one important aspect: resource accumulation, which dominates the *accumulation phase*. Resource accumulation is caused by the same processes that are dominant in the early growth phase, but in the accumulation phase the outcome is more favorable, which refers to the processes that lead to excess capacity (Penrose 1995) and organizational slack (Cyert and March 1963). These two outcomes can lead to additional deployment of (excess) resources and the reinvestment of surplus financial resources respectively. The resource accumulation process allows firms to respond to environmental changes without succumbing to resource shortages. In this phase, firms are able to grow not only in an organic way, but also through acquisitions, because they have the financial and managerial resources to take over relatively large firms. The various phases and dominant processes are summarized in table 1.

Table 1. Development phases and dominant processes

| Development phase | Process |
|-------------------|---|
| Start-up | Opportunity recognition; resource mobilization |
| Initial survival | Resource generation (create and deliver value, and capture returns) |
| Early growth | Surplus resource generation / opportunity recognition |
| Growth syndrome | Resource detraction |
| Accumulation | Resource accumulation |

Although the various phases are presented in a specific sequence, this does not imply that they necessarily occur in the sequence in which they are presented (see Garnsey et al. 2006). A study of these processes and phases provides essential insights into the changing nature of firms and the sources of their diversity, which allows us to analyze the influence firm development in general has on the spatial organization of firms.

Spatial Organization

As I mentioned earlier, it is the purpose of this paper to improve our understanding of the locational behavior of entrepreneurial firms. This means that I not only have to take into account a conceptualization of entrepreneurial firms, and the processes of development, but also a particular dimension of firm development, namely the development of its spatial organization by means of its locational behavior. Locational behavior refers to changing the spatial organization of firms as a consequence of development processes and possibly as an antecedent of development processes. Spatial organization can be defined as the spatial configuration of physical resources that is the outcome of a location decision-making process (cf. Clark and Wrigley 1997). If these resources are important to the competitive advantage of a firm, they are called “locational assets” (Teece et al. 2000, 346). Our definition of spatial organization is based both on the behavioral theory of the firm, because it can be considered the outcome of a (investment) decision-making process (Cyert and March 1963), and on the organizational capabilities view of the firm, because it treats the firm as a collection of productive resources (Penrose 1995).

Existing literature provides insight into the way firm growth leads to relocation (Pellenbarg et al. 2002) and the way geographic expansion is used as a growth strategy (Chandler 1962; Greening et al. 1996). This paper contributes to the literature on firm location by proposing three potential innovations. First of all, I add ‘opportunity-driven’ location-related decision-making next to the existing ‘problem-driven’ one we encounter in the behavioral approach (so-called problemistic search (Cyert and March 1963)). The two types of decision-making define a firm’s willingness to change its spatial organization. Secondly, I identify the role that willingness and ability play in the location-related decision-making process. Whereas most research in economics is based on revealed preferences, I believe that in order to explain behavior we also have to take into account the willingness and ability of actors to behave in a certain way. The ability to change the spatial organization can be explained by three strands of literature: the ‘neo-classical economic’ literature, which emphasizes the comparative costs (and thus ‘economic’ ability) of production at a certain location² (cf. Hoover and Vernon 1959); the ‘resource dependence’ literature, which focuses on the structural dependence on transaction partners (cf. Romo and Schwartz 1995); and the organizational capabilities literature, which sees the firm as a bundle of resources and capabilities that enable it to implement certain (spatial) strategies (cf. Luo 2000; Helfat and Peteraf 2003). These organizational capabilities enable a firm to change its spatial organization successfully (“dynamic capability”) and to adapt to its new spatial organization (“operational capability”) (cf. Kogut and Zander 1993). By looking at the role willingness and ability play in this decision-making process we are able to determine whether it is indeed willingness rather than ability that forms the bottleneck in locational change. We could argue, for instance, that new/small firms are ‘locationally ignorant’ because they do not consider changing their spatial organization at all, while older/large firms are ‘locationally adaptive’, in that they are more likely to adapt their spatial organization to changes in their environment (Ellinger 1977). However, this argument would be based on a cross-sectional comparison of firms, while we are interested in a longitudinal analysis. This brings us to the third innovation, namely the decision to look at firms from a life course perspective, which allows us to analyze the changing conditions that enable and constrain the locational behavior of entrepreneurial firms.

² Including both location-specific production costs and transportation costs of inputs and outputs (cf. Moses 1958) and, in a more advanced version also including logistics-costs (transport costs plus all of the industrial costs associated with holding inventory) or spatial transaction costs (both transportation and information transmission costs related to production and trade) (McCann and Sheppard 2003).

This locational behavior may materialize on different spatial scales. It may occur at a regional level, i.e. the level at which almost all relocations take place, but it may also be at an international level, in the form of so-called ‘foreign direct investments’ of multinational firms (Dunning 1998). Locational behavior thus involves both relocation (locational flexibility) and the opening and closure of branches (locational adjustment), two types of location changes which thus far have been treated separately in most studies. I believe that, if we are to analyze the development of (new) firms, it is important that we look at both locational flexibility and locational adjustment, as one can be a substitute for the other.

Analyzing a firm with a specific spatial organization at a certain moment during its life course implies that the firm has been willing and able to realize the locational change that led to this spatial organization. We define the unobservable concepts of willingness and ability in such a way that both their levels should surpass a given threshold for a firm to change its spatial organization: ability is a necessary condition while willingness is a contingent condition (problem- or opportunity-driven), which together combine into a locational event. In other words, willingness refers to the stated preference (a so-called “locational initiative”), while ability is needed to turn this into a revealed preference.

In existing literature I found five models on the development of the spatial organization that can be related to the development phases I conceptualized in the previous section. These models can be found in Vernon (1966; 1979), Taylor (1975), Johanson and Vahlne (1977), Håkanson (1979), and Dicken (1992). When we combine them, we are led to expect that firms in the start-up and initial survival phases do not decide explicitly where they are going to locate (locationally ignorant), but instead simply decide to sell products on the markets that can be reached from their home location, based on their superior knowledge of the local market and the need to be close to their initial suppliers and customers. The spatial organization of firms in the start-up and initial survival phases is thus expected to be unilocational. In the early growth phase, knowledge about markets and locations outside the region of origin increases through a process of learning that takes place as the geographical market area expands. This improved knowledge of more distant markets reduces the risks of entering new markets (through sales and/or direct investments). Firms also need to become multiregional or multinational because they face increasing competition in their home region or because their growth in that region is too slow. Expansion into other regions may also reduce the costs involved in production and distribution. This makes expansion within the home region and/or new (inter)national branches the most likely changes in the spatial organization during the early growth phase. Corporate restructurings in the growth syndrome phase, caused by external or internal forces, often involve the reduction in both domestic and international operations, which are likely to lead to the closure of (inter)national branches. Although sustained growth may make it necessary to move into export markets, such a move may also place such a heavy burden on a young firm’s resources and competences that it brings its growth to a halt. In the accumulation phase the production capacity has grown to such an extent that location constraints force a firm to decentralize its production and to set up or acquire plants outside its region or country of origin. The accumulation of (financial) resources removes the obstacles small firms normally encounter when they consider widening the scope and scale of their spatial organization. In this phase firms are also better able to access foreign markets due the increased knowledge of these markets. These conditions in the accumulation phase trigger and enable the opening of new (inter)national branches.

We have summarized these expectations in table 2, based on the development phases (rows) and the five models on the development of the spatial organization.

Table 2. Development phases and spatial development

| Development phase | Spatial organization |
|-------------------|--|
| Start-up | Unilocal |
| Initial survival | Unilocal |
| Early growth | Expansion within the home region and/or new (inter)national branches |
| Growth syndrome | Closure of national or international branches |
| Accumulation | New (inter)national branches |

The studies on spatial development depict a probable development sequence. The actual development of the spatial organization of entrepreneurial firms is also the consequence of unforeseen environmental interactions and voluntary strategic choices that are hard to predict. Especially the (spatial) development of entrepreneurial firms is likely to be processual, iterative and fluctuating and does not occur in the neat sequential stages implied in the reviewed studies: a recent strand of literature on so-called international entrepreneurship has argued that the international activity of small and new firms can better be evaluated with the entrepreneurship literature than the traditional internationalisation process theories (Fletcher 2004; Auttio 2005). In addition, the entrepreneur's existing knowledge and expertise may also affect the way a firm develops in time and space.

What implications do these studies on the development of the spatial organization have for the analysis of locational behavior of entrepreneurial firms? What they have in common is a focus on investment decision-making under conditions of uncertainty, and the notion that a firm's life course is characterized by learning and increasing resource commitments. They are helpful in analyzing the locational adjustment of entrepreneurial firms, especially when they decide to expand internationally. However, although these studies provide insight into the way in which firms develop at various spatial levels, they only look at locational flexibility at a regional level, assuming relocation is most likely to take place during the early growth phase. This means that they tell us little to nothing about flexibility at the national and/or international level. A firm's decision to relocate is to a large extent determined by internal factors (Van Dijk and Pellenbarg 2000; Brouwer et al. 2004), which means that looking at the life course of a firm should help explain what motivates the locational behavior of firms. The models presented in these studies were constructed with 20th century manufacturing firms in mind, and one may well wonder whether the insights they provide apply to a 21st century knowledge economy that is characterized by a greater reliance on intellectual capabilities rather than physical inputs or natural resources (Powell and Snellman 2004), and in which firms may well have a superior locational maneuverability. In addition, these studies tend to neglect the role of personal network relationships in locational changes.

Research Design and Data Collection

The empirical part of this study is based on intensive research (Sayer 1992) including comparative case studies (Eisenhardt 1989; Yin 2003). We have examined concrete events that may to some extent be unique. However, "[t]he focus is not on how or why something happened but on how or why something happens" (Mohr 1982, 5). We are looking for mechanisms that explain the development of the spatial organization of entrepreneurial firms. The abstract knowledge resulting from insight into these mechanisms may be more generally applicable (Sayer 1992, chapter 9; Hedström and Swedberg 1998).

I have used a combination of quantitative and qualitative methods. Through semi-structured interviews I registered the general characteristics of the entrepreneur, his or her network relationships, the firm, its inter-organizational relationships and their locations. To reveal the actual logic involved in the decision-making process, I conducted the interviews as close dialogues with the founding owner-managers of the firms (cf. Schoenberger 1991; Clark 1998). The qualitative method involved a life history of the firm as told by the entrepreneur

(Van Geenhuizen et al. 1992), which was explicated using a critical incident technique (Chell and Pittaway 1998; Kaulio 2003). Most of the interviews lasted between one and three hours. In addition to the information gathered in the interviews, I collected data from company archives, the press and other media.

A central element in the empirical analysis of the development of the spatial organization of entrepreneurial firms is formed by the dynamic constructs of locational adjustment and flexibility, which refer to the adjustment of the spatial organization of entrepreneurial firms outside their headquarters (the place where the entrepreneur/owner-manager executes his or her activities) and to the flexibility of the location of the headquarter respectively. They shed light on a firm's ability to switch assets from one location to another without too much friction, and on its flexibility (Sayer 2000). Using these two dimensions we can measure a firm's tendency to concentrate or disperse (cf. Storper 1997, 299-300). The development of the spatial organization of firms consists of a sequence of changes in their spatial organization. In order to find typical sequences of locational events I coded their various types (cf. Abbott 1995). Figure 1 shows the two dimensions in the dynamics of the spatial organization and the locational events involved. There are two states of locational flexibility: "inert" (no relocations outside the region of origin) and "flexible" (relocated outside region of origin). The three states of locational adjustment refer to the scale on which these adjustments have taken place: regional, national, or multinational.

| | | locational flexibility | |
|-----------------------|----------------|--|--|
| | | Inert | Flexible |
| locational adjustment | Regional | 0: initial location at (business) premises 1: intraregional expansion 2: intraregional contraction 3: set up of branch within home region 4: close down of branch within home region | 9: extra-regional relocation of headquarters |
| | National | 5: set up of branch outside home region, within home country 6: close down of branch outside home region, within home country | 9: extra-regional relocation of headquarters |
| | Multi-national | 7: set up of branch outside home country 8: close down of branch outside home country | 9: extra-regional relocation of headquarters |

Figure 1. Locational flexibility and locational adjustment

Research Sample

We based the sampling on a nested, three-stage design. In the first two stages I determined the population, and selected the research cases in the final stage.

In the first stage, I constructed a population of young fast-growing firms, on the basis of three criteria. To begin with, the firms had to be independent and privately held (i.e. entrepreneurial firms): owned-managed by (one of) the founder(s) with a majority stake in the firm, which meant there could be no separation between ownership and control. Secondly, they had to be young, which I defined as being between 5 and 11 years old. This criterion implied that, although the firms could not yet be considered fully mature, they had at least survived the first 4 years of existence - which are generally characterized by the highest failure rates.

Thirdly, they had to have generated at least 20 full-time equivalents (including the owner-manager(s)), which is a rough indicator for company success and also means that the nature of the firm has changed. The firms were selected from the database of the Dutch Chambers of Commerce (1999), which is the most complete database of firms in the Netherlands. At the end of the first stage, the firms that were active in industries heavily dependent on local natural inputs (extractive industries) or local demand (retail and consumer services) were removed from the database, which yielded a database population of 1295 firms in predominantly manufacturing and business services. These firms were removed from the database because I wanted to exclude firms that focused predominantly on local inputs and demand, and as such were highly unlikely to relocate elsewhere.

In the second stage, the database population was further refined by excluding firms which I knew to be branch offices (for instance of a large multinational company like Philips) or that were more than 11 years old. This led to a research population of 1165 firms. The remaining firms were contacted by telephone to ensure that they really did belong to the population, and to determine some of their basic characteristics (such as relocations, number and location of branches, founders, and so forth). In the end we reached 390 firms that also wanted to cooperate. Unfortunately, 216 of these firms were completely owned by external parties or had no active founder anymore. This led to a research population of 174 entrepreneurial firms that matched all the selection criteria: active in manufacturing and business services, not completely owned by third parties and in which (at least one of) the founder(s) was still active.

The telephone survey showed that, although 55 % of the firms in our population had moved after they started, only 4 % had moved out of their region of origin, that is to say, by more than 50 kilometers from their original location. Normally, administrative areas are selected to define a firm's region (such as provinces or Chamber of Commerce districts), but I felt that, since most often this is done so mainly for pragmatic reasons, it made more sense to use an actual geographical definition (cf. Vaessen 1993, 96). The theoretical reason for choosing a radius of 50 kilometers is that this area covers most of its labor market area (Limtanakool et al. 2006) as well as most of the entrepreneurs' daily contacts (Sweeney 1987), and that most of the knowledge spill-overs take place within that radius (Fritsch and Slavtchev 2005).

I selected the research sample from the research population that was defined in the first two stages. To begin with, I focused on the reasons fast-growing firms have to stay within their region of origin, because of the practical concern of regional policy-makers to keep these promising firms within their regional borders. This aspect is especially relevant because, generally speaking, existing studies tend to look exclusively at local and nearby relocations. When I started selecting young fast-growing firms that had left their region of origin, I managed to trace only eight young fast-growing firms that had moved beyond the 50 kilometer radius. It would appear that butterflies do indeed hardly leave their region of origin. I compared these eight firms with firms within the same sector and region of origin, but which had not left their region. In all other respects this second group of firms displayed the same characteristics in terms of size, age, industry, and ownership. I then added a third group that consisted of similar firms that had not grown since their start-up (so-called micro-firms). These firms had to meet the same criteria, except with regard to size: they had to have created up to 5 full time jobs. This enabled the comparison of micro firms that faced similar initial conditions as the fast-growing firms, but that did not enter the early growth phase. In some cases I was unable to select a complete pair from either the first two selection stages (young fast-growing firms) or the Chamber of Commerce database (micro firms). The final sample consisted of 25 young fast-growing firms and 8 young micro firms in four propulsive industries, namely professional business services, biomedical, graphics-media, and shipbuilding. The advantage of our sample is that it consists of firms, not plants as is usual in location studies, which allows us to distinguish multilocational firms and the relocation of headquarters.

Most (15) of the young fast-growing firms had a size between 20-100 employees, while 10 were larger (between 100 and 300 employees). The 25 young fast-growing firms were

responsible for a direct creation of 2309 jobs, only about 45 % of which was created in their region of origin. However, this was due largely to an overrepresentation of locationally flexible firms in our sample: whereas 67 % of all jobs created (in total 1358 jobs) by firms that stayed within their region of origin (normally 95 % of the population) was created within that region, only 12% of those created by locationally flexible firms was created in their region of origin.

Locational Behavior of Entrepreneurial firms

The sequence of locational events of a firm makes up the development of its spatial organization. The path of each firm starts at the start-up phase and can be traced through other phases in its life course. Table 3 shows the 128 locational events in the development phases of the firms studied. In general, locational events involve the organic growth or decline of firms, although acquired growth may also be involved. The addition of an 'A' to the relevant code means that a change in the state of the spatial organization goes hand in hand with acquired growth. For example, 'A5' signifies the acquisition of a firm outside the home region. Some locational events occur simultaneously, for example '90' means relocation from home-based to business premises outside the region of origin; '94' means shifting the main office to an existing location outside of the home region and closing the former main office.

Several firms continued to be home-based until they reached the initial survival phase (firms c, d, C, G, and M) or even longer (firms J, K, L, and b). Within the group of firms that did change locations a subdivision can be made into two categories: firms that changed their location only once, and firms that did so more than once (and possibly have built a capability to change the spatial organization successfully). We could not apply this division within the group of locationally flexible firms, since none of them made multiple extra-regional relocations. Secondly, there are firms that fail to remain national (firms C and X) or multinational (firms A and M); these firms are placed between [brackets] in table 3. The spatial paths in space are named after the branch that was furthest from the home region at any point in time. The group of locationally flexible firms can be split into two subgroups: "early leavers" (firms U, d, G, K, and L), which move out of the region before they grow, and "late leavers", which have grown substantially and are already located in several places (firms B, H, R, and X) before they leave or during their relocation.

Table 3. Locational events and dynamics in the spatial organization[†]

| Path type | Firm | Start-up | Initial survival | Early growth | Syndrome | Accumulation |
|-----------------------------|------|----------|------------------|--------------|----------|--------------|
| Inert regional (IR) | D | 0 | | 1 | | |
| | F | 0 | | 1 | | |
| | J | | | 0 | | |
| | O | 01 | | 1* | | |
| | P | 0 | | 111 | | |
| | Q | 0111 | | | | |
| | S | 0 | 1 | | | |
| | T | 0 | 1 | | | |
| | V | 0 | | 34 | | |
| | W | 01** | | | 1 | |
| | Y | 0 | | A3 | | |
| | a | 0 | | | | |
| | b | | | *** | | |
| | c | | 0 | | | |
| | e | 0 | 1 | | | |
| f | 0 | | | | | |
| g | 0 | 1 | | | | |
| h | 0 | 1 | | | | |
| Inert national (IN) | [C] | | 0 | 15 | 6 | |
| | E | 0 | | 111 | | 11A511 |
| | I | 0 | | 515 | | |
| Inert multinational (IM) | [A] | 0 | | 1537851 | | |
| | [M] | | 0 | 1355 | #88 | 357777 |
| | N | 01 | | 1757 | | 57 |
| Flexible regional (FR) | U | 01 | 9 | | | |
| | d | | 90 | | | |
| Flexible national (FN) | B | 0 | | 1553153 | | 55596 |
| | G | | 90 | 1 | | 5 |
| | H | 0 | | A39 | | A55A5A5A55## |
| | R | 01A95 | | | | |
| | [X] | 0 | 5 | 94* | | |
| Flexible multinational (FM) | K | | | 90177 | | |
| | L | | | 90111 | | 7 |

[†] See figure 1 for the codes of the locational events

* after growth syndrome; ** after initial survival; *** stays home-based

after accumulation; ## and at least 10 more new and acquired branches

How does the development of entrepreneurial firms over time relate to the development of their spatial organization? In the next subsections I present the analysis of the locational behavior of entrepreneurial firms in general and young fast-growing firms in particular in the different development phases. We also provide some illustrative examples from the case studies.

Start-up

As one would expect, the experiences and characteristics of a founder-entrepreneur have a crucial influence during the start-up phase of a firm. In most cases, a firm is set-up because its founder is either unhappy with his or her professional situation, or because he or she recognizes an opportunity.

In most cases, entrepreneurs just set up shop near where they live or used to work. As the entrepreneur of firm a stated: “Why did I start here? Because I live in Delft and the two [business] partners at that time lived in Rotterdam. Now, why should you go and move somewhere else?”. In a similar vein the entrepreneur of firm H stated: “if you have nothing [at the start of the enterprise] you prefer to stay in your well-known environment”. A business site

outside the region where the entrepreneur lives or used to work is almost never taken into consideration. Since there is only limited access to resources and the start-up phase is fraught with uncertainty, it makes no sense to even think about spending time and money trying to locate elsewhere. When there is sufficient certainty about the future prospects of the business and the entrepreneur has adequate resources to invest, or can acquire financial resources on the capital market, a formal business site within the home region of the entrepreneur may be hired or bought. In many cases the choice in favor of a location is made at random, sometimes motivated by the entrepreneur's knowledge of locations, or because premises are available through personal relationships.

Most entrepreneurs tend to locate in their home region because of three mechanisms. First of all, entrepreneurial opportunities are local, not universal. Different people have access to different information and entrepreneurs discover opportunities in markets with which they are familiar, most likely in or near their former working and living environments (cf. Zander 2004). Secondly, since the business will not yet have generated any profits, the location choice is likely to be conditioned by personal motives and networks, which include other people in the home region, such as family, friends, and professional networks. Thirdly, due to the limited access to financial resources, there is only a small range of local or even home-based locations to consider for the initial spatial organization.

In this phase some young fast-growing firms expand *in situ*, or within their region of origin, in anticipation of future growth or because of growth enabled by external resource providers. Promising biomedical and ICT firms can attract large sums of investment capital in the start-up phase and can use them to realize the necessary locational changes before they generate resources themselves. These locational changes can also be realized when entrepreneurs have access to relatively plentiful financial resources, because they have sold their former business or shares from their former employer. In these circumstances, the usual shortage of resources, and thus low frequency of locational change in the start-up phase, does not occur. In other words, firms that have access to or can mobilize substantial resources during the start-up phase are able to realize locational changes early on.

Initial Survival

The initial survival phase is characterized by the necessary mobilization and subsequent generation of resources. These two development processes make it likely that the current location of a firm is not longer acceptable, and that a more efficient and effective location has to be found. To a large extent, the search for this new location is affected by three mechanisms. Firstly, the entrepreneur remains the most important actor in the firm and his or her professional and personal life are strongly intertwined, which means that personal motives and networks enable the search for a new location with information and resources provided by network members. This may, however, also prove to be a constraining factor, because of personal motives involving certain idiosyncratic preferences and a desire to stay close to other important persons such as family members and friends. In this phase there may emerge a certain tension between the entrepreneur's personal and professional interests. The firms that have moved from a home-based location to a business site in the initial survival phase decided to do so because their business life became too intermingled with their private lives, or because they needed a more professional identity. I found that being located at a formal business site increased the legitimacy of the firm and that made it easier to attract new customers or resource providers. Professional surroundings help clarify the identity of a firm, which explains why firms decide to move to a more recognizable site in this phase. For example, the entrepreneur of firm B stated:

... physical presence is important for a certain sense of reliability: are we involved in a relationship with some arbitrary PO Box holder in Curaçao, or can I knock on the door and when I get angry can I meet someone? I understand feelings like that; I would not readily do business with enterprises that only have a PO Box.

The second mechanism involves resource dependence: important customers that are responsible for a major part of a firm's turn-over may have a significant impact on that firm's spatial organization. These customers may prefer or even force a firm (not) to move elsewhere because of the low transportation and transaction costs and the possibility to steer the activities of the supplying firm toward their specific demands. Thirdly, the resources that are generated in this phase may broaden the scope of investment opportunities and thereby stimulate locational change. It is ultimately the product market in which the goods and services are sold that determines whether it is viable to produce and sell goods and services from the specific location. Even though in this phase production and sales volumes are likely to be so small that they themselves do not provide an incentive to open up new branch offices, a firm may decide to move elsewhere anyway if the region in which it operates provides insufficient prospects currently or in the foreseeable future. Relocations for reasons of this nature will, however, only take place when the other liabilities of the mechanisms discussed are not activated. When firms d and G of our research population decided to find a suitable business location, their first relocation took them outside of their home region, though they did relocate to a region where they had previously been working (firm G) or living (firm d). Most of the firms that decide to move to a business site during the start-up phase do not change anything in their spatial organization. Of course, all micro firms remain in the initial survival phase (see table 3).

Early Growth

Most firms that do not fail in the early stages of their existence remain in the initial survival phase: they remain 'caterpillars'. There is a small group of new firms that not only manages to survive, but that is able to grow considerably as well: these firms undergo structural change and become 'butterflies'. They move in the early growth phase either because their initial product proves to be highly successful, or because they have managed to discover additional opportunities that supplement the initial product-market combination.

The early growth phase is full of locational dynamics. One of the characteristics inherent in this phase is the need for additional space as a result of increases in human resources or production facilities. Most firms manage to realize their expansion within their region, because there it is easier to retain personnel and find affordable real estate. If it is not possible to expand within the region, or if there are organizational, marketing-related, or labor market-related factors that make expansion outside the region more desirable, firms will consider setting up a branch elsewhere. However, in most cases a firm will have to encounter considerable difficulties with regard to its old location before such a move is made. Another reason to set up a branch office elsewhere is the recognition of new opportunities. Entrepreneurs in growing firms who set up multiple branches involve others in the decision-making process. This will enhance the job satisfaction of the employees and make it more likely that opportunities will be spotted. Employees can take action to improve the accessibility of the workplace by starting new branches closer to their homes, which will improve a firm's ability to retain and attract valuable employees. When other people besides the entrepreneur are on the look-out for new opportunities, this is likely to allow the firm to grow more and faster. Setting up new branches is also made possible by reinvesting the surplus revenues generated by growth. The decision whether to set up a new branch within the region or country of origin, or even abroad, depends on the entrepreneur's prior knowledge and on the nature of the markets that are served. An entrepreneur with some business experience in other regions or countries is more likely to set up new branches there. Alternatively, knowledge concerning possible new regions may be provided by customers that are located in those regions.

International expansion of firm N

For firm N, the international expansion was largely explained by the entrepreneur's background and by the nature of the market. Before setting up the firm, the entrepreneur had been living and working abroad for a while. Initially, the firm set up branches abroad to service important Dutch customers in Southeast Asia. After a while it also started to attract new local customers. The entrepreneur of firm N rationalized the increased involvement in this part of the world as follows: "We have started there and that feels quite good. That turned out to be the situation until now. So you could also say: why don't you start in South America? Well, we haven't been there yet." This is a clear case of cognitive path dependence.

Other firms decide to open a new branch in areas where they are already providing goods or services, based on the assumption that closer proximity to their customers will enable them to gain a stronger foothold or increase the service they are able to provide. In this phase professional business service firms in particular start new branches inside and outside their region to attract or retain professionals; sometimes this development is stimulated by an organizational structure in which the business units have reached a maximum size.

The internal selection – i.e. location decision-making process – determines which of the many locational initiatives will be realized. Three mechanisms explain the outcome of the internal selection. Firstly, the growth of the firm often involves investments that are not, or at least not fully, recoverable: sunk costs (Clark and Wrigley 1997). These may be investments in physical and human resources that are tied to the current location, or at least to the current region. Because of these sunk costs it makes sense to keep large parts of the spatial organization as they are, which will hamper a firm's locational flexibility. When firms have reached a certain size, the sunk costs in terms of human resources are a real barrier to relocation (i.e. exit) out of the region of origin. For example the entrepreneur of firm S stated in this respect: "You must take account of the fact that about half your team will say: I'm not coming with you, and... so, what does that mean? Is your continuity put at risk? Yes, perhaps a little. And then you must think about it. For some of it you wouldn't want to move at all."

The second mechanism allows for more changes in the spatial organization. Resources that are created in the early growth phase may be used to finance new locational initiatives. Thirdly, through organizational learning and attracting new human resources, a firm may acquire the capabilities needed to realize more complex – multiregional or even multinational – forms of spatial organization. For example internationalization was high on the agenda in the early growth phase of firm A. A previous expansion abroad went badly. In a fit of impetuosity firm A established an office in San Francisco in the shadow cast by a big client. The entrepreneur of firm A admitted "Too early and too unprepared, and too little substance. We had in fact no idea how we were going to set about things. A learning experience, which happily didn't cost us too much money."

When we take all this into account it becomes clear that firms that have entered the early growth phase are most likely to expand within their home region or country. If there are few location-specific sunk costs involved, a firm may decide to move to a better location outside of the region.

Firms that are able to conduct their business without office or production space, even into the early growth phase, do not accumulate high amounts of sunk costs and may have employees that are located in various locations. In many cases, firms of this nature move out of their home region to their first formal offices in (or just before) the early growth phase. Not only locational flexibility involves virtual forms of spatial organization, locational adjustment can also be substituted with virtual forms of organizing. For example, firm S initially considered becoming multiregional, even multinational. It considered setting up a German branch in order to support its customers there. However, on reconsideration, having a German telephone number and some traveling personnel there seemed to be more effective and efficient than a complete new branch. So a 'virtual' branch was established:

We do have a GMBH in Germany; it's financially useful to have that. But, we don't need to create any overheads. From Groningen, you can send orders throughout the whole of Germany within 24 hours. Why then should we have an office in Germany? You can just have a virtual office there. People call from Germany and the 'phone is answered here in German. As well as the fiscal advantage, we also pay the traveling personnel through Germany. And as for the rest, people just sit here and talk to the clients on the 'phone. (Entrepreneur, firm S)

Growth Syndrome

If for some reason a firm encounters and is unable to solve problems in its development, a *growth syndrome phase* sets in. The problems that emerge in this phase sometimes call for a solution that involves the closure of certain locations; in some cases the only thing that may save firms in this phase is disinvestments. During this phase there is characteristically no change in a firm's spatial organization, as they need to focus their attention elsewhere and find themselves in a highly uncertain situation. Not many of the firms had needed to shut down branches, but when they had, it was usually in or just after the growth syndrome phase. In the case of firm X, the closure of a branch (and indirectly the relocation of the headquarters from Meppel to Deventer) was motivated both by a declining local market (in Meppel), and personal preferences of the entrepreneur (for a headquarters in Deventer):

Besides, to be honest with you, I myself had less affinity with Meppel than with Deventer. Because I thought that that service package we were offering in Deventer suited me better as an entrepreneur. A better future, but actually I also had a better feeling about Deventer. So that meant that I paid less attention to Meppel, although actually Meppel ought to have had more attention paid to it, because of the declining market and so on. So at a given moment I said: it's all going wrong in Meppel, folks. In the last year we suffered quite a large loss. After that we said: we'll just have to stop. (Entrepreneur, firm X)

Of course, branches can also be closed in other phases as the result of a trial-and-error process that occurs when changes are brought about in the spatial organization. The reason that most closures occur in the growth syndrome phase is that the internal problems or external shocks that brought about this phase often lead to financial problems, which may be solved by closing down units. Also, the internal problems may be directly related to a firm's inability to manage a multi-unit operation, in which case it is the branches that are located outside of the home region that are most likely to be closed. Closures may be avoided if new financial resources can be found; important customers and suppliers may play an important role here, as they can either offer assistance or create unfavorable payment conditions.

Spatial disinvestments

Firms that encounter a setback are usually characterized by relatively large amounts of disinvestments: branches outside the region of origin may be closed, because new markets fail to make them viable (the burst of the Internet bubble in the case of firm M), or because the firm (mainly the entrepreneur) was unable to manage them at a distance (firm C). It is not completely clear whether these disinvestments were the cause or the effect of a growth syndrome. We do know, however, that they were related: in the two cases mentioned here both the growth syndrome phase and the disinvestments were caused by a lack of coordination competence in firm C and a collapse of the market of one specific business unit in firm M.

The investment made by firm W in the growth syndrome phase in anticipation of future growth was very risky, because of the lack of financial resources.

Accumulation

Finally, the very small group of firms that actually manage to continue growing independently enters the accumulation phase, either through recognizing and realizing new opportunities, or through generating a surplus of resources. Some firms discover that they are

unable to enter the accumulation phase on their own, or if they could, that they were unable to do so fast enough. They allowed themselves to be taken over by other organizations, which also provided a solution to some of their locational problems.

Locational initiatives in this phase are often opportunity-driven, but they may also be motivated by shortages of production or office space. This phase is characterized by even greater sunk costs than the early growth phase, which makes it even harder to shut down branches or move a firm's headquarters outside of the region. There are two other mechanisms that enable changes in the spatial organization to be made, even more so than in the early growth phase. Firstly, the accumulation of resources creates excess capacity, in financial as well as managerial terms, and these resources can be used to realize locational initiatives. Firms that possess sufficient financial resources may also consider taking over other firms as a way of expanding into other regions. Secondly, as a firm goes through its organizational learning process and is able to attract more and perhaps superior human resources, it will be better able to set up and coordinate new branches over longer distances. In addition to these two mechanisms, having branches in several regions may make it easier to decide moving a firm's headquarters to another region. As a firm grows, location-specific sunk costs will play a relatively smaller role, and can possibly be taken over by another branch in the region of origin. Although the network of an entrepreneur will at first provide an incentive to remain with the region of origin, the entrepreneur and the firm will become less intertwined over time (the firm increases in size and complexity, especially when it has become multilocal). This means that the entrepreneur's personal network becomes less important as an explanation of the spatial organization of the firm.

To some extent the external selection environment can be resisted in this phase. New branches that cannot survive on their own in their specific selection environment may be retained, because resources transferred from other parts of the firm support them. As a result of slack in the accumulation phase, the external selection environment of new units can be resisted for a relatively long period. Although the external selection environment can thus be resisted more than in other phases, the product and labor market in particular still determine whether production and sales is viable in the long term.

It has often been argued that growing and larger firms decide to move out of their home region more often because they are less dependent on other organizations and are able to do so because they have more resources than small firms. While this argument may seem convincing, it fails to take into account that these firms probably have also accumulated relatively higher sunk costs in terms of firm-specific human and physical resources. This is true in particular for firms that have made high location-specific investments that cannot easily be recovered if they decide to move.

In this section we have explored the locational behavior of entrepreneurial firms in distinct phases of their life course. In the next section we will abstract and generalize from these empirical findings.

Towards a Theory of Locational Behavior of Entrepreneurial Firms

A theory of locational behavior of entrepreneurial firms has to take into account the (short term) location decision-making processes that may lead to certain locational events as well as the (long term) development processes of entrepreneurial firms. To explain why locational events occur, I have separated the effects of willingness and ability to change the spatial organization at an empirical level. Decisions to do with a firm's location are triggered by a willingness to change. This willingness may be the result of necessity, or may be because a firm recognizes an opportunity. However, firms will only follow up this willingness if they are able to do so. The ability to bring about change is assessed *ex ante* (before the locational event)

by a decision-making (selection) process within the firm and ex post (after the locational event) by the way the market responds. The ability of a firm to change its location depends on the (financial, human) resources to which it has access and on the organizational capabilities it possesses (“dynamic capability”) and which enable it to manage the new spatial organization (“operational capability”). The ex post selection reveals the extent to which the firm has been able to turn the new branch or the relocated headquarters into a viable resource-generating entity. So the location decision-making process involves two levels of variation and selective retention: the organizational environment, and the external environment. Which level is most important depends on the nature of the firm and the nature of the environment at the moment of selection. External selection could be deemed more important if internal selection processes do not reflect external selection pressures. The opposite situation occurs when the organizational selection processes reflect external selection processes, for example as an effect of organizational learning. Another proposition can be put forward on the ‘spatial selection environment’. If the external selection environment operates very weakly *and* the regions in which the spatial units are located provide the necessary generic resources³, then the human agency and chance involved in the locational initiatives and the factors related to the internal selection environment provide a more extensive explanation for the spatial organization than the external selection environment (cf. Boschma and Lambooy, 1999). The elements and agents involved in the process of location decision-making are summarized in table 4. With this conceptualization we could identify the different causes of locational inertia: it could be the sheer ignorance of the decision-makers to start any new locational initiative; or it could be a lack of either willingness or ability to transform a proposed locational initiative into a locational event (internal selection).

Table 4. Elements and agents in the process of location decision-making

| | Locational initiative | Internal selection | Locational event | External selection |
|------------------------------|---|---|--|---|
| Definition of element | consideration of (dis)investing in a change in the spatial organization | internal environment in which investment projects compete for resources and are selected on the basis of specific internal selection criteria | (dis)investment in a spatial unit of the firm, leading to a change in the spatial organization of the firm | selection of spatial units or complete firm with specific spatial organization by market environments |
| Agents involved | those who perceive opportunities or constraints | those who decide which initiatives will be acted on | all members of the changed parts of the firm | resource providers; exchange partners; competitors |

The proposed theory of locational behavior of entrepreneurial firms needs to be a process theory. Process theories⁴ focus on the explanation of the temporal order in which a discrete set of events occurs; that is to say, they explain an observed sequence of events in terms of the underlying mechanisms that cause events to happen and the particular circumstances that exist when these mechanisms operate. The interaction of these mechanisms with contingent conditions (random, chance events for example) explains the locational behavior of entrepreneurial firms.

³ The necessary inputs are not localized, but ubiquitous on higher spatial levels (Weber 1929; Maskell and Malmberg 1999). Maskell et al. (1998) see the process of ‘ubiquitification’ as an effect of globalization; many previously localized capabilities and production factors have become ubiquitous.

⁴ Process theory is contrasted with variance theory, which aims to account for the input factors (independent variables) that statistically explain variations in some outcome criteria (dependent variables). See Mohr (1982); Sayer (1992; 2000).

A location decision-making process involves just one cycle, while the locational behaviour of entrepreneurial firms – especially fast-growing ones – consists of many cycles (see figure 2). These cycles involve cumulative causation: a continuity of cause and effect without a final term. Every cycle is to some extent an effect of the previous cycle and a cause of the subsequent cycle. For example, an external selection environment entered in a previous cycle may trigger a locational initiative in a subsequent cycle (with problemistic search, for example). Also, capabilities built up in previous cycles may enable subsequent locational changes, while accumulated sunk costs constrains later changes. The spatial organization of entrepreneurial firms co-evolves with the accumulation of their capabilities, which implies that the locational behaviour of entrepreneurial firms is highly path dependent.

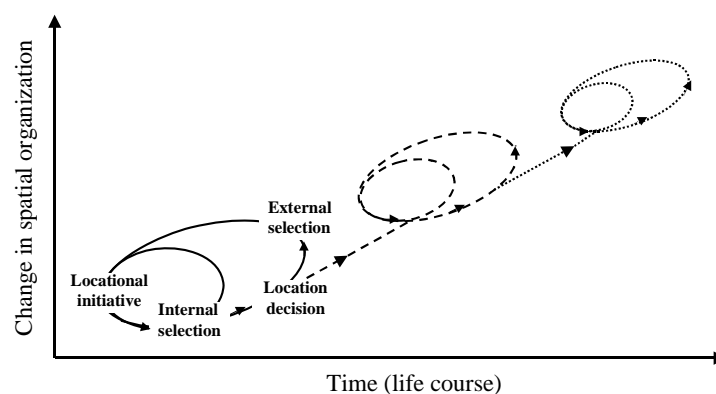


Figure 2. Locational cycles in the development of a firm's spatial organization

The initial conditions before the first cycle sets in must first be identified before there can be a complete understanding of the locational behavior of entrepreneurial firms during their life course. Subsequent change is also structured by the past, so we also have to take into account the successive cycles following this first one, with changing conditions, internal as well as external. Different types of path dependence are involved, including cognitive (prior knowledge), previous investments in the form of sunk costs, and structural lock-ins into webs of interdependent relationships. These path dependences constrain and enable the range of possible options, affecting in the main the emergence of locational initiatives and the internal selection process. A key step in terms of theory development is the identification of the causal powers and mechanisms of entrepreneurial firms that are necessary for the explanation of locational events and thus the locational behavior of entrepreneurial firms during their life course. In table 4 I identified the four basic elements in the (short term) location decision-making process. In table 5, I have summarized the key mechanisms and outcomes over the life course, per development phase. The outcomes in the spatial organization are represented as the locational events in the six states of the spatial organization (see also figure 1). They are coded as IR (Inert Regional), IN (Inert National), IM (Inert Multinational), FR (Flexible Regional), FN (Flexible National), and FM (Flexible Multinational). The filling of these cells represents the probability of the occurrence of certain locational events. These can be read as propositions, based on the dominance of certain mechanisms causing changes in the spatial organization in specific development phases. These reflect tendencies, not predetermined outcomes. For example, relocation of the headquarters out of the region of origin (a move from an Inert state to a Flexible state) is improbable in any development phase, while for example the opening and closing of international branches is very probable in the accumulation and growth syndrome phase. The “locational initiative” and “internal selection” columns present the dominant causal mechanisms involved ex-ante the locational event, while the “external selection” column

presents the dominant mechanisms ex-ante the locational event (possible triggering new changes in the spatial organization).

Table 5. Elements of the theory of locational behaviour of entrepreneurial firms

| Development phase | Mechanisms in locational change | | | | |
|-------------------------|--|---|-------------------|----------------|--------------------------------|
| | Locational initiative | Internal selection | Locational event* | | External selection |
| Start-up | opportunity recognition | social networks; investment | IR IN IM | FR FN FM | capital market |
| Initial survival | problemistic search | social network; resource dependence; investment | | | product market |
| Early growth | problemistic search; opportunity recognition | sunk costs; investment; competence | | | product market; labor market |
| Growth syndrome | problemistic search | disinvestment | | | capital market; product market |
| Accumulation | opportunity recognition; problemistic search | sunk costs; investment; competence | | | product market; labor market |

* see figure 1 for index matrix



In table 5, I have summarized the key conditions and mechanisms involved in locational change for each of the development phases (see the prior section on the locational behavior of entrepreneurial firms for illustrations). If it is to be valuable, a new theory needs to generate new predictions, or explain phenomena that the theories it integrates or competes with are not capable of explaining. The added value of the emerging theory of locational behavior of entrepreneurial firms is fourfold. Firstly, most location theories focus on size or age as independent variables, while this theory takes the development phases as the point of departure. This distinction is particularly relevant in considering the different processes that dominate specific phases. Secondly, this theory divides the decision-making process on the basis of a firm’s willingness and its ability with regard to locational change. Thirdly, this theory looks at the internal as well the external evolutionary processes (variation-selection-retention of the spatial organization of firms) that play a role in the decision-making process. Path dependence in locational behavior, both in terms of willingness and ability to change the spatial organization, follows from this. This helps explain why firms that face similar external selection environments may respond in different ways. Fourthly, this theory explains the impact that entrepreneurs – as human agents – have on the locational behavior of entrepreneurial firms. This factor is particularly relevant in that it helps explain locational initiatives and internal selection in the early development phases. Entrepreneurial opportunities and a willingness to change are shown to be important explanatory factors in this respect.

This theory explains the locational behavior of entrepreneurial firms as the outcome of a process of initiatives taken by entrepreneurs, enabled and constrained by resources, capabilities

and relationships with internal and external stakeholders. This is a process that is difficult to predict, as it depends on the idiosyncratic nature of people and events. However, this does not imply any indeterminism as firms may learn and thereby create new capabilities that enable, and possibly constrain, the recognition and realization of new locational initiatives. The spatial organization of entrepreneurial firms co-evolves with the accumulation of their capabilities. For example, if a firm has developed the capability to open new branches in other regions successfully, it is more likely to open additional branches (like several fast-growing professional business service firms in our study). The resulting locational events may in turn lead to new initiatives, as is shown in figure 2.

Discussion and Implications

How does the spatial organization of entrepreneurial firms develop during their life course, and for what reasons? Thus far, most studies present new firms as passive and faceless entities. This view fails to take into account the role played by entrepreneurs as well as the increased importance of human resources and organizational capabilities in explaining the location of new, fast-growing firms. To incorporate these elements, I have presented new conceptualizations of entrepreneurial firms and their locational behavior. I have confronted these conceptualizations with the empirical results of a field study among new, fast-growing firms. I have looked at the relevant developments among new micro firms and fast-growing firms. As expected, whereas micro firms – just like caterpillars – tend to be fairly static when it comes to their locational behavior, the same cannot be said of most fast-growing firms. When I investigated the relationship between the development of firms over time and possible locational events I found that there was a causal connection between the two. This study shows that the spatial organization of entrepreneurial firms co-evolves with the accumulation of their capabilities.

To explain why certain developments take place I proposed a theory of locational behavior that explains the dynamics of the spatial organization of entrepreneurial firms during their life course. It is a theory that explains why different types of locational initiatives emerge and whether or not they develop into a locational event, and which markets are most relevant as external selection environments during the life course of entrepreneurial firms. In contrast to what we are led to expect in existing literature, I found examples of firms that expanded geographically while they were still in the start-up and initial survival phases, and in some cases they even relocated outside the region of origin, because the entrepreneurs recognized entrepreneurial opportunities. However, most entrepreneurs that considered moving out of their home region decided against such a move due to highly valued personal relationships. Firms that decide to move out of their home region in the early phases of their existence do so for different reasons than those that decide to do so at a later stage. The entrepreneur's personal relationships, for example, become less important as time goes by. So called "late leavers" find it more difficult to move due to high sunk costs in human resources, but the ones that realize such a move have built up a multilocal organization in which this problem is circumvented because they leave behind a branch office in the region of origin of the firm.

In contrast to expectations based on the existing studies on spatial development, most firms do not decide to open branches in other regions, or even abroad in the early growth and accumulation phases, because they can easily expand and reach other markets without maintaining a physical presence there. Another explanation is that these firms have been able to contract employees that are located outside of the region where the headquarters is located, and as such can act as 'virtual branches' while they are working at home or on the customer's location. Contrary to what we find in the industrial cluster and embeddedness literature, inter-organizational networks hardly play a role in explaining the spatial organization of young fast-growing firms. The growth of entrepreneurial firms is likely to have a negative effect on their

regional embeddedness (cf. Wood et al. 2004). It is only during the early phases that these inter-organizational networks possibly constrain the location behavior of firms, but I found that new and comparatively small firms hardly ever consider changing their spatial organization. This is one example where the distinction between willingness and ability allows us to explain the location-related decision-making process of new forms.

In conventional analysis, the internal and external factors associated with the location of (new) firms are dealt with in separate disciplines, and at various (micro and macro) levels of analysis. I have decided not to draw this distinction, and wanted to make sure I incorporated internal factors in explaining the locational decision-making process of entrepreneurial firms. In addition, I take into account the personal and inter-organizational relationships that connect entrepreneurs and their firms to (their home) regions (cf. Dicken and Malmberg 2001).

We explained that, as a rule, butterflies do not leave their home region, but that in some – exceptional – cases they do decide to spread their wings and move beyond their old environment. On the one hand, we should not be afraid to look beyond physical conceptions of the firm in a ‘globalizing, learning economy’, as many opportunities are recognized and realized without changes to the *physical* spatial organization of the firm. Although firms are an institutional reality, they are not necessary a physical reality (Searle 2005, 15-16). On the other hand, most butterflies are connected more closely to their home region than might be expected on the basis of the prevailing notion surrounding what it is that constitutes a firm, and most job creation does take place in the regions of origin. I have analyzed firms that were managed by their owner, and found that there is a considerable chance that they will evolve into corporations with external shareholders (as happened to Lycos before it left Pittsburgh for Boston, and also to several biomedical firms I studied). This evolution is likely to turn these firms into the feared footloose organizations, which are dictated by the desires of powerful shareholders. It would be interesting to see how regional policy-makers view the trade-off between, on the one hand, an improved performance by promising new firms due to external stakeholders and, on the other hand, an increased likelihood that these firms move of their home region due to changes in their governance structure.

References

- Abbott, A. 1995. A Primer on Sequence Methods. In *Longitudinal Field Research Methods*, eds G. P. Huber and A. H. Van de Ven, 204-227. Thousand Oaks: Sage.,
- 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.
- Beyers, W.B. 2002. Services and the New Economy: elements of a research agenda. *Journal of Economic Geography* 2: 1-29.
- Boschma, R.A. and Lambooy, J.G. 1999. Evolutionary economics and economic geography. *Journal of Evolutionary Economics* 9: 411-429.
- Brouwer, A.E., Mariotti, I., and Van Ommeren, J.N. 2004. The firm relocation decision: An empirical investigation. *Annals of Regional Science* 38: 335-347.
- Buss, T.F. 2002. Emerging High-Growth Firms and Economic Development Policy. *Economic Development Quarterly* 16: 17-19.
- Carr, M. 1983. A contribution to the review and critique of behavioural industrial location theory. *Progress in Human Geography* 7: 386-401.
- Chandler, A. 1962. *Strategy and Structure*. Cambridge, MA: MIT Press.
- Chell, E., and Pittaway, L. 1998. A study of entrepreneurship in the restaurant and café industry: exploratory work using the critical incident technique as a methodology. *Hospitality Management* 17: 23-32.
- Clark, G.L. 1998. Stylized facts and close dialogue: Methodology in economic geography. *Annals of the Association of American Geographers* 88: 73-87.

- Clark, G.L. and Wrigley, N. 1997. The spatial configuration of the firm and the management of sunk costs. *Economic Geography* 73: 285-304.
- Cyert, R.M. and March, J.G. 1963. *A behavioral theory of the firm*. Englewood Cliffs, NJ: Prentice-Hall.
- Dicken, P. 1992. *Global Shift: the Internationalization of Economic Activity*. London: Paul Chapman.
- Dicken, P., and Malmberg, A. 2001. Firms in territories: A relational perspective. *Economic Geography* 77: 345-363.
- Dunning, J. 1998. Location and the Multinational Enterprise: A Neglected Factor? *Journal of International Business Studies* 29: 45-66.
- Dutch Chambers of Commerce. 1999. *KvK-Adressen CD* (data CD Rom). Woerden: Kamers van Koophandel Data.
- Eisenhardt, K.M. 1989. Building Theories from Case Study Research. *Academy of Management Review* 14: 532-550.
- Ellinger, R. 1977. Industrial Location Behavior and Spatial Evolution. *Journal of Industrial Economics* 25: 295-312.
- Figueiredo, O., Guimaraes, P., Woodward, D. 2002. Home-field advantage: location decisions of Portuguese entrepreneurs. *Journal of Urban Economics* 52: 341-361.
- Fletcher, D. 2004. International entrepreneurship and the small business. *Entrepreneurship & Regional Development* 16: 289-305.
- Florida, R. 2002. *The Rise of the Creative Class*. New York: Basic Books.
- Fritsch, M., and Slavtchev, V. 2005. The role of regional knowledge sources for innovation – An empirical assessment. Freiberg Working Papers 15-2005, Technical University Bergakademie Freiberg, Germany.
- Garnsey, E. 1998. A Theory of the Early Growth of the Firm. *Industrial and Corporate Change* 3: 523-556.
- Garnsey, E., Stam, E. and Heffernan, P. 2006. New Firm Growth: Exploring Processes and Paths. *Industry and Innovation* 13: 1-20.
- Geroski, P.A. 2001. Exploring the Niche Overlaps Between Organizational Ecology and Industrial Economics. *Industrial and Corporate Change* 10: 507-540.
- Glasmeier, A. 2000. Economic geography in practice: Local economic development policy. In *The Oxford Handbook of Economic Geography*, eds. G.L. Clark, M.P. Feldman, M.S. Gertler, 559-584. Oxford: Oxford University Press.
- Granovetter, M. 1995. The Economic Sociology of Firms and Entrepreneurs. In *The economic sociology of immigration: essays on networks, ethnicity, and entrepreneurship*, ed. A. Portes, 128-165. New York: Russell Sage Foundation.
- Greening, D.W., Barringer, B.R., and Macy, G. 1996. A qualitative study of managerial challenges facing small business geographic expansion. *Journal of Business Venturing* 11: 233-256.
- Håkanson, L. 1979. Towards a Theory of Location and Corporate Growth. In *Spatial analysis, industry and the industrial environment*, eds F.E.I. Hamilton and G.J.R. Linge, 115-138. Chichester: Wiley.
- Hanson, S. 2003. Geographical and Feminist Perspectives on Entrepreneurship' *Geographische Zeitschrift* 91: 1-23.
- Hart, D. M. 2003. *The Emergence of Entrepreneurship Policy. Governance, Start-ups, and Growth in the U.S. Knowledge Economy*. Cambridge: Cambridge University Press.
- Hedström, P. and Swedberg, R. 1998. *Social Mechanisms. An Analytical Approach to Social Theory*. Cambridge: Cambridge University Press.
- Helfat, C.E. and Peteraf, M.A. 2003. The dynamic resource-based view: Capability lifecycles. *Strategic Management Journal* 24: 997-1010.
- Hoover, E. and Vernon, R. 1959. *Anatomy of a metropolis*. Cambridge, Mass: Harvard University Press,.

- Johannisson, B. 1995. Paradigms and entrepreneurial networks - some methodological challenges. *Entrepreneurship & Regional Development* 7: 215-231.
- . 2000. Networking and Entrepreneurial Growth. In *The Blackwell Handbook of Entrepreneurship*, eds D.L. Sexton and H. Landström, 368-386. Oxford: Blackwell.
- Johanson, J. and Vahlne, J.-E. 1977. The internationalization process of the firm - A model of knowledge development and increasing foreign market commitments. *Journal of International Business Studies* 8: 23-32.
- Katona, G. and Morgan, J.N. 1952. The quantitative study of factors determining business decisions. *Quarterly Journal of Economics* 66: 67-90.
- Kaulio, M.A. 2003. Initial conditions or process of development? Critical incidents in the early stages of new ventures. *R&D Management* 33: 165-175.
- Kenney, M. and Patton, D. 2005. Entrepreneurial geographies: Support networks in three high-technology industries. *Economic Geography* 81: 201-228.
- Kirchhoff, B.A. 1994. *Entrepreneurship and Dynamic Capitalism*. Westport, Conn.: Praeger.
- Knudsen, C. 1995. Theories of the firm, strategic management and leadership. In *Resource-Based and Evolutionary Theories of the Firm*, ed. C. Montgomery, 179-217. Boston: Kluwer.
- Kogut, B. and Zander, U. 1993. Knowledge of the firm and the evolutionary theory of the multinational corporation. *Journal of International Business Studies* 24: 625-645.
- Langley, A. 1999. Strategies for theorizing from process data. *Academy of Management Review* 24: 691-710.
- Limtanakool, N., Dijst, M., and Schwanen, T. 2006. On the participation in medium- and long-distance travel: A decomposition analysis for the UK and the Netherlands. *Tijdschrift voor Economische en Sociale Geografie*. Forthcoming
- Luo, Y. 2000. Dynamic capabilities in international expansion. *Journal of World Business* 35: 355-378.
- Malecki, E.J. 1997. Entrepreneurs, Networks, and Economic Development: A review of recent research. *Advances in Entrepreneurship, Firm Emergence and Growth* 3: 57-118.
- Markusen, A. 1996. Sticky places in slippery space. *Economic Geography* 72: 293-313.
- Maskell, P. 2001. The Firm in Economic Geography. *Economic Geography* 77: 329-344.
- Maskell, P., Eskelinen, H., Hannibalsson, I., Malmberg, A. and Vatne, E. 1998. *Competitiveness, Localised Learning and Regional Development. Possibilities for Prosperity in Open Economies*. London: Routledge.
- Maskell, P. and Malmberg, A. 1999. Localised learning and industrial competitiveness. *Cambridge Journal of Economics* 23: 167-185.
- McCann, P. and Sheppard, S. 2003. The rise and fall and rise again of industrial location theory. *Regional Studies* 37: 649-664.
- Mohr, L.B. 1982. *Explaining Organizational Behavior. The Limits and Possibilities of Theory and Research*. San Francisco: Jossey-Bass.
- Moses, L. 1958. Location and the Theory of Production. *Quarterly Journal of Economics* 72: 259-72.
- Mueller, E. and Morgan, J.N. 1962. Location decisions of manufacturers. *American Economic Review* 52: 204-217.
- Nijkamp, P. 2003. Entrepreneurship in a Modern Network Economy. *Regional Studies* 37: 395-405.
- O'Farrell, P.N. and Hitchens, D.M.W.N. 1988. Alternative theories of small-firm growth: a critical review. *Environment and Planning A* 20: 1365-1383.
- Pellenbarg, P.H., Van Wissen, L., and Van Dijk, J. 2002. Firm migration. In *Industrial Location Economics*, ed. P. McCann, 110-150. Cheltenham: Edward Elgar.
- Penrose, E. 1995. *The Theory of the Growth of the Firm* (3rd edition). Oxford: Oxford University Press
- Powell, W.W., Snellman, K. 2004. The knowledge economy. *Annual Review of Sociology* 30: 199-220.

- Rathe, K., and Witt, U. 2001. The Nature of the Firm - Static versus Developmental Interpretations. *Journal of Management and Governance* 5: 331-351.
- Reynolds, P., and White, S.B. 1997. *The entrepreneurial process*. New London CT: Quorum books.
- Romo, F.P. and Schwartz, M. 1995. The structural embeddedness of business decisions: The migration of manufacturing plants in New York State, 1960 to 1985. *American Sociological Review* 60: 874-907.
- Sayer, A. 1992. *Method in Social Science*. London: Taylor & Francis.
- Sayer, A. 2000. *Realism and Social Science*. London: Sage.
- Schoenberger, E. 1991. The corporate interview as a research method in economic geography. *The Professional Geographer* 43: 180-189.
- Schreyer, P. 2000. High-growth Firms and Employment. STI Working Paper 2000/2, Paris: OECD.
- Schutjens, V. and Stam, E. 2003. The evolution and nature of young firm networks: a longitudinal perspective. *Small Business Economics* 21: 115-134.
- Searle, J.R. 2005. What is an institution? *Journal of Institutional Economics* 1: 1-22.
- Stam, E. 2005. The geography of gazelles in the Netherlands. *Tijdschrift voor Economische en Sociale Geografie* 96: 121-127.
- Storey, D. 1997. *Understanding the small business sector*. London: International Thomson Business Press.
- Storper, M. 1992. The limits to globalization: Technology districts and international trade. *Economic Geography* 68 (1): 60-93.
- Storper, M. 1997. *The regional world: Territorial development in a global economy*. New York: Guilford Press.
- Storper, M. and Harrison, B. 1991. Flexibility, hierarchy and regional development: The changing structure of industrial production systems and their forms of governance in the 1990s. *Research Policy* 20: 407-422.
- Sweeney, G.P. 1987. *Innovation, Entrepreneurs and Regional Development*. New York: St Martin's Press.
- Taylor, M.J. 1975. Organisational Growth, Spatial Interaction and Location Decision-Making. *Regional Studies* 9: 313-323.
- Taylor, M.J. and Asheim, B. T. 2001. The concept of the firm in economic geography. *Economic Geography* 77: 315-328.
- Teece, D.J., Pisano, G., and Shuen, A. 2000. Dynamic Capabilities and Strategic Management. In *The Nature and Dynamics of Organizational Capabilities*, eds Dosi, G., Nelson, R., and S.G. Winter, 334-362. New York: Oxford University Press.
- Vaessen, P.M.M.V. 1993. *Small Business Growth in Contrasting Environments*. Nijmegen: Catholic University of Nijmegen.
- Van den Berg, L., Braun, E., and Van Winden, W. 2001. Growth Clusters in European Cities: An Integral Approach. *Urban Studies* 38: 185-205.
- Van Dijk, J., and Pellenbarg, P.H. 2000. Firm relocation decisions in The Netherlands: An ordered logit approach. *Papers in Regional Science* 79: 191-219.
- Van Geenhuizen, M., Nijkamp, P., and Townroe, P. 1992. Company life history analysis and technogenesis. *Technological Forecasting and Social Change* 41: 13-28.
- Vernon, R. 1966. International Investment and International Trade in the Product Cycle. *Quarterly Journal of Economics* 80: 190-207.
- . 1979. The Product Cycle Hypothesis in a New International Environment. *Oxford Bulletin of Economics and Statistics* 41: 255-267.
- Weber, A. 1929. *A theory of the location of industries*. Chigago: Chigago University Press. (1st edition in German 1909).
- Wood, A. M., Watts, H. D., and Wardle, P. 2004. Growth-oriented small firms and the nature and extent of local embeddedness: The case of a traditional metalworking cluster. *Growth and Change* 35: 419-433.

- Yin, R. K. 2003. *Case study research: Design and methods* (3rd edition). Thousand Oaks: Sage.
- Zander, I. 2004. The microfoundations of cluster stickiness – walking in the shoes of the entrepreneur. *Journal of International Management* 10: 151-175.