



## **New ventures:**

Uncovering start-up sequences for innovative and non-innovative new ventures

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## ABSTRACT

The venture creation process of 24 ventures in the Information and Communication Technology industry and Environmental Technology industry was examined by means of questionnaire guided interviews. The premise of this study is that innovative and non-innovative venture creation processes differ. The venture creation stage is identified as the period between the nascence of a business idea until the moment of sustainable profits. We segregated the ventures along the lines of non-innovative, incrementally innovative and radically innovative. The venture creation processes were examined along the core variables of people, finance, product development and also the venture creation process as a whole. The time of occurrence for the core activities was mapped for each venture during a telephonic interview, thereby making it possible to identify an order of activities instead of only the occurrence. The order of activities provided input for the creation of ideal-typical sequences.

The results show significant differences between innovative and non-innovative ventures on every measured aspect. The overall venture creation length does reveal a statistically significant difference, however the period towards registration of the venture and the period towards sustainable profits show a longer duration. Innovative ventures, especially radical innovative ventures, employ more people during the venture creation phase. The higher the level of innovativeness the more founders are involved, the more people are employed directly and also more external advisors are being hired.

The general premise that new ventures favor internal- above external financing was also confirmed. The properties of new venture finance differs as well between innovative and non-innovative ventures. Innovative ventures obtain finance earlier during the venture creation process, which is favored in the form of subsidies. Especially the radical innovative ventures rely on subsidies during the venture creation stage, while loan providers are being used less as the innovativeness increases. The most interesting is that the sequence of activities during venture creation does not differ for innovative and non-innovative ventures. Only the presence of activities differs, innovative ventures perform more activities and have longer stages of the activities. However, the activities on which these ventures resemble are performed in the same order. We find that new ventures perform the same order of activities to legitimate the venture, however the process of legitimation takes considerably longer for innovative ventures.

**KEYWORDS:** New venture, start-up, strategy, entrepreneurship, entrepreneurs, venture creation, venture gestation, start-up events, new firms,

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## 1 INTRODUCTION

Dutch policymakers have supported entrepreneurship in the last decade by implementing programs stimulating entrepreneurship e.g. subsidizing a valorization program and setting up several centers of Entrepreneurship (AWT, 2012). The government has an increasing focus on supporting innovative entrepreneurship with the goal of improving the innovative capacity and competitiveness of the Netherlands (Kamerbrief, 2012). However, research by Acs & Szerb(2010) found that “*the Netherlands hosts one of the most developed and sophisticated entrepreneurial environments [...] but entrepreneurship does not seem to have improved much despite the various policy initiatives*” (p. 32), showing the limited success of Dutch entrepreneurship policies.

Entrepreneurship is important for a country, emphasized by economists within business and management studies sharing the opinion that entrepreneurship positively impacts the economic growth of a country (Carree & Thurik, 2003). Entrepreneurship literature within business and management studies describe the role of entrepreneurs as agents of change and a source of innovative activity (Acs, 1992). Geroski (1995) argues that new ventures act as vehicles bringing innovations to the market and encourages incumbents to maximize efficiency. From this literature can be concluded that the creation of new ventures benefits society and is valuable for the economy of a country.

The process of creating new ventures has received an increased focus within entrepreneurship literature (Gartner, 1988). Van de Ven (1980) argues that focusing on the *process* of entrepreneurship will lead to a better understanding of the phenomenon. This research draws upon insights from the process-oriented entrepreneurship literature to study the *creation process* of new ventures. Within the process-oriented view the focus lies on ‘*why, when and how different modes of action are used to exploit entrepreneurial opportunities*’ (Shane & Venkataraman, 2000, p. 218). These different modes of action can be referred to as start-up sequences. These have been investigated before and it is acknowledged that there are several typical ways of starting a new venture (Carter, Gartner, & Reynolds, 1996).

However, a limited amount of previous studies have focused on the characteristics and antecedents of the venture creation process, with only 11 studies solely focusing on the process (Davidsson & Gordon, 2011). Mainly due to this fact no consistent sets of start-up sequences have been identified today. Another reason for the few examples is the static ways of previous investigations. Davidsson (2005) argues that start-ups should not be examined as an event but as a period of time, emphasized by the statement “*that start-up is not one decision or behavior, but indeed a process – a whole array of actions that are spread out over time – indicates the problem to be faced*” (p. 6).

Of the existing process-oriented studies only a limited amount focuses on explaining the variance of the “*opportunity or venture idea*” (Samuelsson & Davidsson, 2008, p.229). Even less is known about the influence of the venture strategy on the start-up process. It is acknowledged that strategic choices of the entrepreneur leave an imprint on the venture at the time of founding (Boeker, 1988). In his research into the influences of different product marketing strategies on firm profiles, Boeker (1988) argues that different strategic imprints during venture creation affect the eventual firm properties. The only study specifically addressing the difference between innovative and imitative venture creation processes performed by Samuelsson (2008) finds differences between these processes. However, the authors suggest that the theory explaining the variance of venture creation processes remains under developed. The study considers that heterogeneity of venture ideas needs to be considered in future research.

Thus variation in start-up activities and sequences can be explained by different innovative strategies. The focal point of this research is to explain the variance in venture creation processes between new ventures with different innovative strategies. To address the heterogeneity of the ventures we have chosen two different

industries of origin i.e. the Information and Communication Technology industry and the Environmental Technology industry.

### 1.1 RESEARCH QUESTION

The aim of this research is uncovering the differences between innovative and non-innovative start-up sequences. The departure point of this study is that innovative ventures come into nascence differently compared to the ones starting with a non-innovative strategy; they have different start-up processes. Therefore we address the *difference* between *start-up activities* during the venture creation process of the firms with innovative and non-innovative strategies; which leads to the following research question:

*What are the differences in the venture creation process between innovative ventures and non-innovative ventures?*

### 1.2 RELEVANCE

The Dutch government supports innovative entrepreneurship with different policy measures, however with limited success. New ventures act as vehicles to bring innovations to the market, as argued by Geroski (1995). Therefore we agree on the importance of the stimulating innovative entrepreneurship, although theory suggests that *“the process of new venture creation is still under theorized”* (Samuelsson & Davidsson, 2008, p.229). Especially the differences between innovative and non-innovative venture creation processes are under developed. An increase of knowledge on this issue is important, *“because various stakeholders (policy-makers, educators, investors, and business founders) have an interest in facilitating venture creation processes and avoiding their typical traps and detours.”* (Samuelsson & Davidsson, 2008, p.231). The difference between innovative and non-innovative venture creation processes is important for policymakers; since the preceding theory pointed out that this difference matters for the characteristics and venture creation process.

The scientific relevance for venture creation research is best described by Samuelsson (2008), who argued that *“research focusing on this phenomenon has the potential of making important contributions to the broader fields of economics, management and organization theory [...] where the process of moving from non-existence to an operational organization is treated in a cursory manner.”* (p.231).

### 1.3 OUTLINE OF THE REPORT

The proceeding is as follows: The next section develops the theoretical framework and generates specific hypotheses. The third section describes the methodology and operationalization of the measured characteristics. The fourth section presents the results, followed by the discussion in the fifth section. The final section presents the conclusion. In the remainder of this report the term ‘venture creation’ is intertwined with ‘start-up’ as well as the term ‘venture’ and ‘firm’ or ‘company’, however we consider these as the same entities.

## 2 THEORETICAL FRAMEWORK

*“Entrepreneurship is a multifaceted phenomenon that cuts across many disciplinary boundaries”*

(Low & MacMillan, 1988, p.140)

### 2.1 VENTURE CREATION PROCESS

The process of new venture creation is studied by process-oriented entrepreneurship research within business and management studies (Carter et al., 1996). Venture creation is an important topic in entrepreneurship research, emphasized by Gartner (1988) claiming that *“entrepreneurship is the creation of organizations”* (p.47). In much of the organizational literature creation of ventures is described in a static manner (Delmar & Shane, 2004), however the process-oriented stream within organizations literature considers venture creation as a dynamic process (Katz & Gartner, 1988). Venture creation is a process with activities spread out over time; it is not a single event at a certain point in time (Samuelsson & Davidsson, 2008). This process has gained an increased focus within the research field of entrepreneurship (Davidsson, 2005), thereby addressing the research gap of how ventures come into being.

Studying the creation of new ventures entails mapping the activities performed by nascent entrepreneurs in their attempt to create a new business. Venkataraman (2000) has defined that, *“firm creation process researchers examine resource mobilization, firm organizing, and market making, starting with the assumption that opportunities exist, have been discovered, and will be exploited through the creation of new firms”* (p.219). Despite the growing body of literature focusing on venture creation, only relatively few empirical studies *“explore and identify conceptually significant categories and sub processes in venture creation”* (Bhave, 1994, p.223). Only 34 studies have focused on the process of venture creation (Davidsson & Gordon, 2011), the process of starting a new venture is therefore still a large mystery (Reynolds & Miller, 1992). According to Carter & Stearns (1994) *“the theoretical and empirical literature on entrepreneurial behaviors is very diverse, and few efforts have been undertaken to identify and validate a set of comprehensive and parsimonious behaviors necessary to create a new business”*(p. 154).

Studying the process of new venture creation requires a conceptual definition of this object. Katz & Gartner (1988) explored the properties of emerging organizations and argue that the starting point of most organizational literature is when organizations already exist thereby excluding the stage of emergence. According to Katz & Gartner (1988) *“studying the emerging organization [...] explores the territory between pre-organization and the new organization”* (p. 429). They argue that a study on new ventures requires the researcher to set boundaries for the actions belonging to the process of new venture creation. Therefore in order to study the concept of venture creation the start- and end of the venture creation process should be clearly demarcated.

#### 2.1.1 START OF THE VENTURE CREATION PROCESS

The steps before an organization is created are vital to the process of new venture creation, because it is these actions *“in which the pre-organization becomes the new organization”*(Katz & Gartner, 1988, p. 433). Katz & Gartner (1988) proposed four characteristics by which an emerging venture can be identified i.e. (1) intentionality, (2) resources, (3) boundary and (4) exchange. Identification of one or more of these four characteristics suggests the start of a new venture, so not all of the characteristics have to occur. The characteristic of intentionality is the most common indicator for the start of the venture creation process, supported by research of Reynolds and Miller (1992).

Empirical research by Reynolds and Miller (1992) made the characteristic of intentionality more specific for a better definition of a new venture start. They found that the first time an individual puts personal commitment

into the new venture – i.e. personal time or personal resources – proves to be the most common first event in the start-up process. The event recorded before that is the speculation of individuals for setting up a new firm. Although the speculation about starting a new venture was a less common event in the dataset of Reynolds and Miller (1992) they underscore that this event is the actual conception of a firm. Following on this notion the starting point for a new venture in this research will be the first time an individual has speculated on starting a new firm.

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### 2.1.2 END OF THE VENTURE CREATION PROCESS

The end of the venture creation phase is an important characteristic, since research on the process of start-ups should be limited to the process of *creating* the organization instead of *running* the organization. As defined by Gartner (1988), “*entrepreneurship ends when the creation stage of the organization ends*” (p. 62). Reynolds & Miller (1992) proposed several criteria to identify the end of the creation process i.e. (1) personal commitment of the individuals starting the firm, (2) first financial support from external financiers, (3) when the first sales income is received or (4) when the first personnel is hired. They argue that the first sales income is the most significant indicator, because it is the materialization of the business opportunity and it is the point at which the first customer feedback is generated. A study by Carter et al. (1996) successfully used the first generated sales as an indicator for the end of the venture creation process, indicating the acceptance of using this as an indicator.

In this study we will use the first durable sales income as the indicator for the end of the venture creation process. Although the other indicators have successfully been applied in other studies, we argue that profits are a common characteristic for ventures since this is a precondition for sustaining a venture. Other studies have used hiring of personnel and external financial support as indicators marking the end of the venture creation process (Aldrich et al., 1987; Katz & Gartner, 1988). However, we predict that some of the ventures remain self-employed thus not requiring personnel, while the small starting capital does not require some ventures to obtain external financial support.

Two studies have used this indicator successfully, therefore in this research the durable profit will serve as the indicator for the end of the venture creation process.

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### 2.1.3 DURATION OF VENTURE CREATION PROCESS

An estimation of the length of a complete venture creation process provides insights for the comparability of different venture creation process. Van de Ven (1989) found that the typical duration of the venture creation process is nearly four years in their research on high-tech firms. In the study of Reynolds & Miller (1992) based on a random sample of over 3000 venture conceptions in the USA; 90 percent of the ventures reached maturity within three years. This is important for the time frame in which data collection for my research will be performed, following these prior results we expect the duration of venture creation to be ranging from three to four years.

## 2.2 VENTURE CREATION ACTIVITIES

Creating a new venture is essentially organizing a new organization. According to Weick “*organize is to assemble ongoing interdependent actions into sensible sequences that generate sensible outcomes*”(1979, p.3). This claim uncovers two important properties of the venturing process i.e. (1) the activities and (2) the sequences of activities which lead to the outcome of an organization. The activities are the building blocks of the organization and the sequence of these activities are supposed to be in a sensible order to create a desirable outcome. This research has the premise that ventures at least have a recognizable start-up sequence, being different for innovative and non-innovative new ventures.



A wide body of literature has investigated the numerous activities performed during the process of starting a new venture. Most of the empirical studies are based on the *Panel Study of Entrepreneurial Dynamics* (PSED: see Carter, Gartner & Reynolds, 1996; Gatewood, Shaver & Gartner, 1995) and other literature is based on a Swedish panel study of business start-ups (see Samuelsson, 2001). Table 1 lists the activities identified in prior research. This list is non-exhaustive; therefore we selected the most cited research papers with their subsequent activities. Table 1 provides an insight in the diversity of activities performed by nascent ventures.

Table 1 provides an extensive overview of start-up activities, although some are overlapping. Also the collection is too extensive for exact measurement in this research. Therefore, we abstract three overarching *core variables* covering most of the activities proposed by literature. These *core variables* are (1) people, (2) finance and (3) product development. The core variables are guidelines for the operationalisation:

- (1) *People* are central to the process of starting a new venture. It is the individual who possesses the knowledge of a new opportunity to create rent (Shane & Cable, 2002). Also Weick (1979) defined that the individual is central to organizing the “*interdependent actions into sensible sequences*” (p.3). Therefore we argue that organizing is a directed and not a self-evident act requiring people to direct this process. Organizing the start of a new venture requires different actions from different people; these can be the founders, employees or externally hired people. The extent to which an entrepreneur uses a network of people is an important aspect during venture creation (Birley, 1985). This covers both the personal contacts and technical knowhow, as proposed by Vesper (1980).
- (2) Obtaining *finance* is a crucial part for new ventures to pursue rent seeking opportunities, “*making financing central to the process of entrepreneurship*” (Shane & Cable, 2002, p.364). Financing is the mobilization of resources making the entrepreneurial activities possible (King & Levine, 1993). It mobilizes financial resources for the creation of the rent-seeking opportunity. Finance can contain either the capital of the founder(s) itself or externally acquired capital.
- (3) The *product development* concept is the materialization of the rent-seeking opportunity, encompassing different ways of bringing technical skill and capacities to the market through products (McCann, 1991). The product development concept implies the practices directly related to the conversion of technical knowledge and capacities for the development of the product. Thereby limiting the amount of activities indirectly related to product development.

In table 1 indicates which core variables belong to the activities. We also added the core variable of venture creation which aims at the actions defining the start- and end of the venture creation process. The following abbreviations are used in the table to classify the activities by core variables: P = people; F = finance; PD = product development; VC = venture creation.

**Table 1: Identified venture creation activities by literature (p=people, f=finance, pd=product development, vc=venture creation process)**

Authors	Year	Identified activities		
Carter, Gartner & Reynolds	1996	1. organize a team (p)	6. invest own money (f)	11. applied a license/patent (pd)
		2. prepare business plan (p)	7. ask for funding (f)	12. formed a legal entity (vc)
		3. buy facility/equipment(f)	8. get financial support (f)	13. hired employees (p)
		4. rent facility/equipment (f)	9. develop models (pd)	14. saved money to invest (f)
		5. look for facilities(p)	10. devoted fulltime (p)	
Vesper	1980	1. Technical knowhow (p) 2. Product or service idea(vc)	3. Personal contacts (p) 4. Physical resources (p, f, pd)	5. Customer orders (-)
Gatewood Shaver & Gartner	1995	1. Assess market (p)	6. Secure a location (vc)	11. Distribute product (vc)
		2. Estimate profits (p)	7. Purchase supplies (f)	12. Market product(p)
		3. Complete groundwork (vc)	8. Lease Equipment (f)	13. Install and adjust(p)
		4. Structure company (p)	9. Hire employees(p)	14. Train customers(p)
		5. Set up operations(pd)	10. Produce product (pd)	
Reynolds & Miller	1992	1. Personal commitment (p)	3. Sales (vc)	
		2. Financial support (f)	4. Hiring (p)	
Katz & Gartner	1988	1. Intention (p)	3. Boundary (vc)	
		2. Resources(p, f, pd)	4. Exchange (vc)	
Samuelsson	2001	1. Decided to start exploitation(p) 2. Product/services idea or concept(p) 3. Product/services initial development(pd) 4. Information of competition/opportunity(p) 5. Saving money to invest(f) 6. Contact with support organization(p) 7. Joined network(p) 8. Team in process(p) 9. Team complete(p) 10. Business plan in process(p) 11. Business plan completed(p)	12. Projected financial statement(f) 13. Application for funding(f) 14. Received funding successfully(f) 15. Unsuccessful search for funding completed(f) 16. Purchased raw materials, supplies, inventories (f) 17. Started investing own money(f) 18. Established credit with a supplier(f) 19. Purchased major item(f) 21. Marketing or promotion started(p) 22. Product/services tested on customers(p) 23. Own phone line(vc)	24. Permits and licenses in process(pd) 25. Permits and licenses granted(pd) 26. Registered at PRV <sup>1</sup> (vc) 27. Received tax licenses(vc) 28. Application for patent, copyright, trademark in process(pd) 29. Application for patent, copyright granted(pd) 30. Product/services ready for sale(pd) 31. Business received income (vc) 32. Devoted full time to the business(p) 33. First hire(p) 34. Revenues exceeded expenses (vc)

<sup>1</sup> Patent- och Registreringsverket: Swedish authority for registering a new venture.

### 2.3 VENTURE CREATION SEQUENCES

In the previous section we hit upon the notion of Weick (1979) that organizations are built from sequences of activities. Several studies (Carter et al., 1996; Delmar & Shane, 2002; Liao & Welsch, 2008) show that great variation is present in the sequence and duration of start-up processes. The most significant findings are the fact that (1) not all the identified start-up activities are a necessity to set-up an organization, (2) the pattern of the start-up activities varies among entrepreneurs; mostly because activities cannot be performed simultaneously, (3) industry differences require different sequences and (4) the pattern differs because of the chain of sequences; some activities depend on the completion of other activities (Liao & Welsch, 2008). These findings by prior literature are important, since they can help explain differences between start-up sequences.

Founders will start the venture creation process in different ways (Carter et al., 1996), like developing the product first, or obtaining the critical resources. Other firms will start with obtaining capital, or approaching potential customers before developing a product. Every start-up sequence is thus idiosyncratic, with each venture creation process originating differently. There is a multitude of influential factors for the composure of the start-up sequence. A study by Gartner & Shaver (2004) mentions the founding team, start-up motive, the industry, the founding region, the origin of the venture, location, legal form, technological intensity, profitability and generated revenue (Gartner & Shaver, 2004). However, Katz & Gartner (1980) and Vesper (1980) provide evidence that *different strategies* lead to differences in start-up sequences. This is the focal point of this research.

While Katz & Gartner (1988) make a minor notion that different *strategies of organizing* have an influence on the early venture creation process, the study of Vesper (1980) focusses on strategies of new product, new service, imitative product, imitative service, franchising, geographical transfer, customer sponsored, parent company sponsored, governmental sponsored and acquisitions. This included the new ventures with imitative- and new product or service strategies, which is interesting for this research. Although it is not exactly the division of innovative versus non-innovative as in this research, these product strategies resemble a strategy of innovativeness. The imitative product service strategies resemble a non-innovative strategy, because we can compare it to traditional products with no innovative properties. The new product or service development resembles an innovative strategy, because introducing a new product or service requires the use of a non-common knowledge base (Arrow, 1974). The research by Vesper (1980) is an indication that non-innovative strategy and innovative strategies lead to a difference in the start-up sequence of a new venture. The finding by Boeker (1988) that strategic imprints at the start of a new venture define the following development process led to an empirical study by Carter & Stearns (1994) including the strategy of new ventures in the analysis.

The strongest indication for venture creation differences to be present along the lines of product novelty is the process model developed by Bhave (1994). This model suggests that ventures could be classified along the product novelty in any of the core variables we specified earlier. Thereby suggesting that firms which are physically dissimilar and operate in different industries could have similar venture creation processes, making the product novelty the common denominator. This notion puts forward that it is valuable to take industry differences into account. The study by Carter & Stearns (1994) investigated new ventures with "*product innovation [...] and differentiation strategies*" (p. 21). The authors confirm the proposition that different innovation strategies for new ventures also require different steps in the process of setting-up a new venture. They contend that the strategy mostly depends on the place in the industry value chain; therefore also the actions of new ventures during the process of creating an organization will be different.

In the early stages all new ventures are susceptible to the 'liability of newness,' their initial strategy is focused on survival also guiding their actions towards survival (Stinchcombe, 1965). However, we contend that the non-innovative ventures suffer less from the 'liability of newness.' Non-innovative (reproductive focused) ventures

do not differ in their resources and actions and only have the purpose of optimizing the market transactions (Arrow, 1974; Kirzner, 1978). The common base knowledge and necessary resources are all in place for reproduction focused new ventures, where innovative ventures mostly operate in a new product-market domain. This is the difference between the exhibition of existing market transactions and the creation of new market transactions, such as performed by innovative new ventures (Arrow, 1974). Therefore we argue that non-innovative ventures have a “shorter and more straightforward process” (Samuelsson, 2001, p.1). This notion is supported by later research of (Samuelsson & Davidsson, 2008) showing that innovative ventures direct more efforts towards legitimation explaining the presence of more venture creation activities during the start-up phase.

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### 2.3.1 CORE VARIABLES

The preceding theory suggests that new ventures with different innovative strategies also differ in the venture creation stage. In an attempt to find empirical differences between new ventures with different innovative strategies we measure differences along the three core variables including the venture creation length.

#### **Venture creation length**

As argued in the preceding section, we expect that non-innovative ventures have a shorter process of venture creation. Interesting to study is that within the process of converting the idea into a profitable venture we can make a distinction between (1) the period that the idea was born until official registration of the venture and (2) the period between registration and attaining sustainable profits. The first period is the period of legally legitimating the idea, which covers the process towards legal registration of the venture. We argue that this process takes longer for innovative ventures due to the lack of an existing knowledge base.

The second period encompasses the legitimation in the market place while “new organizations lack the legitimacy [...] that established firms possess” (Delmar & Shane, 2004, p.387). We argue that it takes longer for an innovative venture to legitimate their idea for at least two reasons. First, identifying the customers and customer needs may be more difficult because of the aim on a new market. Second, the resources for an innovative venture are harder to obtain while the common base knowledge is not in place compared to the non-innovative venture. We expect that in both periods innovative ventures consume more time compared to non-innovative ventures. The previous leads to the following hypotheses:

*Hypothesis 1a:* The more the innovative venture strategy, the longer the venture creation process.

*Hypothesis 1b:* The more the innovative venture strategy, the longer the period of ideation before registration of the new venture.

*Hypothesis 1c:* The more the innovative venture strategy, the longer the period of maturation until the moment of sustainable profits.

#### **People**

New ventures are started by entrepreneuring individuals referred to as the founders. The founder initiates the process and organizes a founding team (Gatewood, Shaver, & Gartner, 1995). Following Cooper (1994), entrepreneurs make use of professional advisors to access information and helping them to identify blind spots. According to Aldrich (1987) the act of seeking information reflects that the venture requires more sophistication and more difficult planning. We argue that innovative ventures due to their innovative nature have a more sophisticated venturing process requiring more in-depth knowledge. Therefore we expect a higher amount of advisors involved in innovative ventures. We further argue that the same holds for partners and employees being involved in the new venture, which will lead to “a greater breadth and depth of expertise”

(Cooper et al., 1994, p.378). We expect that a greater breadth and in-depth expertise is required for innovative new ventures. Another argument could be that the prospective product is so innovative that external knowledge is no addition to the venture. However, according to Samuelsson & Davidsson (2008) complex problems in a narrow domain mostly require more professionals using their tacit knowledge to decide upon the complex problem. Therefore we argue that the extreme newness of the product will not lead to a diminishing number of external experts. The previous reasoning leads to the following hypotheses:

*Hypothesis 2a:* The more the innovative venture strategy, the more advisors are involved during the venture creation process.

*Hypothesis 2b:* The more the innovative venture strategy, the more founders are involved during the venture creation process.

*Hypothesis 2c:* The more the innovative venture strategy, the more employees are involved during the venture creation process.

### **Finance**

For new start-ups it will be difficult to raise funds, while the venture has no track record for outside investors and are liable to managerial inexperience. There are different ways of financing, according to Grimaldi & Grandi(2005) new ventures mostly use finance through public funding, private equity and loans with rents. The finance structure of new ventures will have a preference towards internal financing of the new venture according to the pecking order theory (Myers, 2001). Therefore we expect that new ventures will use personal investments before obtaining external financing, without regard to the innovativeness of the venture.

A higher measure of innovativeness leads to a greater information asymmetry in the market. For external financiers this makes the endeavor to invest more risky as the information asymmetry increases. For this reason highly innovative ventures will pay a higher interest for external private equity financing in contrast to non-innovative ventures having a low information asymmetry. We argue that a higher level of innovativeness causes a higher tendency towards subsidies, which do not require the venture to bridge the information asymmetry and no interest to be paid. This also leads to the hypothesis that non-innovative ventures use external financing more often.

We further argue that the innovative new ventures require funds more often and earlier in the process. The innovative ventures are considered to put more effort on legitimating their venture in the market. We argue that these in general require considerable more funds for research and development of the final product because of the unproven market potential and higher technological risk (Keuschnigg & Nielsen, 2003). The preceding taxonomy leads to the following hypotheses:

*Hypothesis 3a:* New ventures use personal investments before turning to external financiers.

*Hypothesis 3b:* The more the innovative venture strategy, the more often a subsidy is required.

*Hypothesis 3c:* The more the innovative venture strategy, the less often loan providers are required.

*Hypothesis 3d:* The more the innovative venture strategy, the earlier a form of capital is needed during the venture creation process.

### **Product development**

New ventures revolve around exploiting a new product since this creates rent to sustain the venture. New product development is thus central to the process of new venture creation. Higher levels of innovativeness

also mean higher levels of uncertainty around the possible market. Bhave (1994) argued that product development with a high novelty factor requires a longer time to find a good fit with the market, since *“there were no precedents nor any customer feedback to guide the entrepreneurs”* (p.231). We therefore argue that product development will take longer for more innovative new ventures.

*Hypothesis 4: The more the innovative strategy, the longer the product development stage.*

#### **Venture creation sequences**

In a previous section we argued that the sequences of activities for new venture creation differ for nascent ventures with different innovative strategies (Carter & Stearns, 1994). The empirical examples of venture creation sequences are still scarce and exploratory. In line with the rest of the research we expect to find differences in the sequences for ventures with different innovative strategies. However, we cannot exactly predict what the differing factors will be and therefore the ideal-typical sequences remain exploratory. To quote Gartner et al.(1989): *“We believe that there is a significant degree of variation within the population of entrepreneurs and new business ventures, and that the study of this diversity will lead us to a better understanding of entrepreneurship. To look for the ‘average’ in entrepreneurship is to overlook variation”* (p.170).

### 3.1 RESEARCH DESIGN

This research applies a cross-sectional research design with an exploratory character. The design fits the aim to find a pattern of association between different variables of the venture creation processes. The venture creation processes are still not clearly described by literature (Davidsson & Gordon, 2011), hence the exploratory character of this research. We used structured interviews assisted by questionnaire surveys as research strategy. A cross-sectional research design does have the fallacy that causal inferences are difficult to make because the direction of the relationship is not known (Bryman, 2006). As will be described in the internal validity section we partly circumvent this fallacy.

The processes of the nascence of firms are still not completely understood with no general agreement on concepts and variables (Low & MacMillan, 1988). The concepts and variables that are known are taken into account, while the unknown concepts and variables should be revealed. The reason of using mixed methods in this research can be exemplified by following Simon (1985) *“one should not let one’s discipline determine the choice of method; rather, one should fit the method to the problem”*.

### 3.2 DATA COLLECTION

The data were collected among firms newly founded in the Information and Communication Technology (IT) and Environmental Technology (ET; Wind, Solar and Biomass) business during the years 2004, 2005 and 2008. These years were selected to include years of reasonable economic stability and economic turmoil, making the sampled population less dependent of economic constraints. The aim of this research to include innovative and non-innovative companies justifies the choice for the ICT and ET industries. These industries consist of reasonably settled infrastructures which contains the reproduction of techniques as well as highly innovative companies (either incremental or radical)(Eurostat, 2011). However, the industries have their own specific regulations which could result in skewed data. Therefore we check for differences and peculiarities between the industries.

The datasets with the ventures were collected from the ORBIS database with specific search terms and filtered on industry activities based on NAICS-codes (North American Industry Classification System) and NACE-codes (Nomenclature statistique des Activités économiques dans la Communauté Européenne). The dataset contained in total 1938 firms with a majority of ICT start-ups (1738)<sup>2</sup>. The following search terms for the companies’ trade description of the companies were used with the Boolean operator ‘OR’:

- Information and Communication Technology: innovatie, applicatie, ontwikkelen, technologie, concept, communicatie, ontwikkeling, high\*tech, hightech.
- Environmental Technology: wind, therm\*, solar\*, zon\*, zonnecel, biomass\*, bio\*mass, bio\*stroom, stroom\*bio\*, biogas, bio\*gas, bioenergie, bio\*energie, energie\*bio.

The data collection consists of interview-based questionnaire surveys with the founders of ventures registered in the selected years. The ventures in the datasets were approached by telephone and asked for the founder. Each founder was asked personally to participate in this research to overcome the low response rate, distrust and unwillingness to respond. In case a founder agreed on participation he was asked to complete a screening survey with questions regarding their venture, which on average took 15 minutes of their time. This acted both as screening for the sufficiency of knowledge of the founder as well as providing input for the telephonic

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<sup>2</sup>In addition to the dataset some ventures in the ET domain were found through using the Google search engine with the terms ‘innovatieve’ and ‘start-up’. From the results the ET companies were filtered.

interview following on that. The telephonic interview was guided by an extended version of the screening questionnaire containing all the questions defined in the operationalization section<sup>3</sup>. Following Bhawe (1994), the interviewing technique also involved asking some open ended questions, giving the respondents a considerable amount of leeway to elaborate on their answers. Based on their answers some probing questions were asked to elaborate on the subject in question. Questions not included in the questionnaire were asked as we picked-up important information put forward by the interviewees, thereby making it possible to place the questioned subjects in a broader perspective.

The aim of the telephonic interviews was to reveal how the venture creation process differs between innovative and non-innovative new ventures. These interviews lasted between 30 and 75 minutes and traces back (1) the measure of the ventures' innovativeness, (2) the starting- and end dates of venture creation, (3) the starting- and end dates of involvement of people and capital during this process and (4) the starting- and end dates of product development. The telephonic interviews further allowed us to maximize reliability of the respondents' answers i.e. to check the answers provided by the respondents in the screening questionnaire and also to validate the right interpretation of the questions (Bryman, 2012). In addition to that; the technique of interviewing allowed for urging the respondents to recall exact dates and also to fill-in the non-responses present in some of the screening surveys.

### 3.3 SAMPLING STRATEGY

For this research a mix of stratified and quota sampling was applied to obtain the 24 respondents, since the final set of firms contained 1938 ventures. Because of the large amount of ventures we chose to apply the mixed sampling strategy. Therefore we stratified the population on the criterion of company size, legal forms, the founding region, location and technological intensity. The determination of the strata was performed by talking to the founder during the invitational telephone call together with information from the companies' websites. The sampling strategy is a form of non-probability sampling, having consequences for the type of statistical testing.

The population of firms was also segmented into different years of registration and industrial activity (Solar, Wind, Biotech or ICT). The registered firms in the datasets were approached randomly within the dataset until the total quota of 24 respondents was reached. We did not determine quota for any of the segmented datasets, because we expected that the datasets in the ET domain were exhaustive in contrast to the ICT dataset. Out of the complete set an estimated total of 475 firms were approached, of which 112 *agreed* to participate. From the companies that agreed to participate 24 *actually* participated.

Quite a large proportion of ventures did not respond to our screening survey, which was a failure to obtain measurements on the sampled units. These were distinguished in non-respondent units - selected but not measured – and non-covered units - no chance of being selected – which covers the dissolved firms which have no working telephone line (Groves, Biemer, & Lyberg, 2001). The other non-response is associated with (1) units that have not been contacted beforehand due to the selection criteria, (2) contacted units refuse to participate in the survey, (3) the unit agrees on participation but never fulfills the duty to complete the screening survey. However, all these types of non-response units did not result in a sampling error affecting the results of this research.

In the datasets of the ET firms all the ventures were approached and all respondents were included in this research due to the limited amount of ventures present. However during the process it appeared that the amount of ET respondents was too limited for analysis and therefore additional ET firms were approached by

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<sup>3</sup> The data collection was performed as part of another research, requiring us to follow the questions of the existing questionnaire and thereby collecting additional data which is not used in this research.

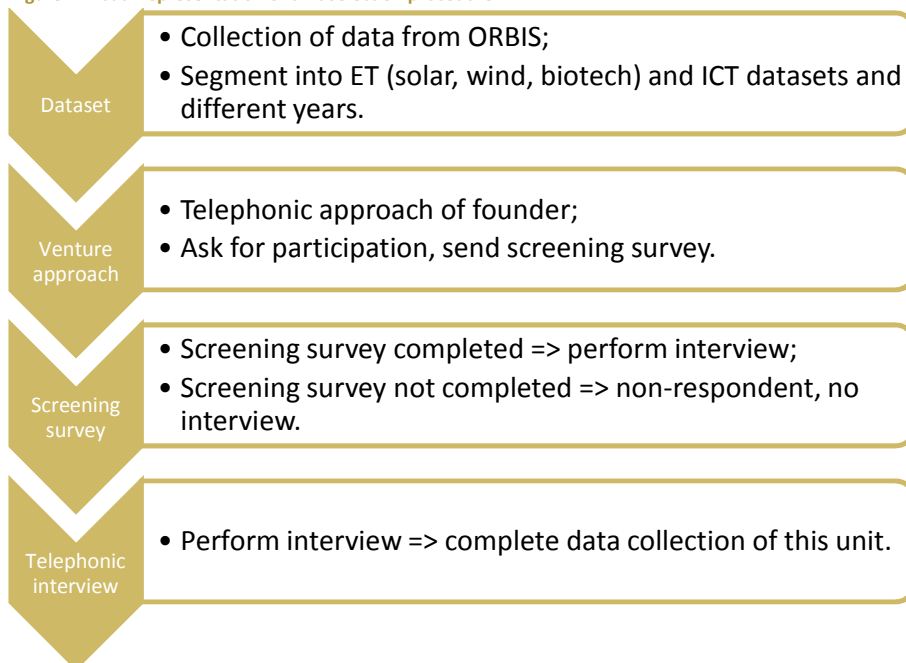


applying a Google search (see footnote 1). In the final analysis the total amount of ET firms was 8 of which 1 was obtained via the Google search.

For the ICT datasets a quota sampling strategy was applied and the choice of respondents is left to the interviewer. Our main selection criterion was that the firms had a working and up to date website, because we may expect of a company in this domain to be able to profile itself on the important medium internet. This form of non-probability sampling does not allow for the results to be applied to the whole population.

A visual representation of the selection procedure is displayed in figure 1.

Figure 1: visual representation of unit selection procedure.



### 3.4 OPERATIONALIZATION

The primary focus of this study is to uncover that innovative ventures differ significantly in the activities, duration of the activities and sequence of the activities during the start-up phase. The underlying premise is the existence of a relationship between the strategy of a new venture (innovative or non-innovative) and the sequence of activities during the creation of the new venture. In order to measure the correlation we need a systematic way of researching the phenomenon. Therefore measurable concepts for both variables are required which are deduced from the theoretical framework. The theoretical underpinning secures congruence between the observations made and the aim of the research.

The two variables investigated in this research are:

- (1) The characteristics of the start-up process i.e. the activities and the sequence of activities;
- (2) The strategy of the new venture i.e. innovative or non-innovative.

We hypothesized that the start-up process of a new venture is dependent upon the strategy of the new venture, therefore we define this process as the dependent variable. Thereby we also hypothesize that an innovative strategy is independent of the start-up process, defining the innovative strategy as the independent variable.

### 3.4.1 DEPENDENT VARIABLE

The questionnaire listed 62 activities involved in starting a new venture, since the questionnaire was part of a larger research not all the questions are relevant for this research. The relevant questions are marked in *italics*. The questions which were not directly relevant are important to mention, because asking these questions provided us with a more detailed account of the venture creation process. The measured activities were grouped into four main categories: (1) Venture creation, (2) People, (3) Finance and (4) Product Development.

#### Venture creation

Determining the venture creation process period required to ask about the characteristics of the venture. Containing questions about the domain of operation and the dates of ideation, registration and sustainable profits. The ideation is considered the starting moment of the venture creation process. In-between we measure the official moment of registration, making the venture a legal entity. The end of the venture creation process is demarcated by the first time three consecutive months of profits were attained; in this research referred to as sustainable profits.

Further we questioned the industry in which the venture operates in order to be able to trace back the industry in which the firm operates. Also we questioned the legal form of the venture at the moment of registration.

Table 2 lists the questions that were used.

Table 2: characteristics of venture creation inquired in the questionnaire

<b>Venture creation period</b>	<i>When did you or one of the other founders first discuss the idea to set-up this business with another person; when was the new venture officially registered; has the venture ever made sustainable profits, in other words has net monthly revenue generated by this new venture ever exceeded monthly expenses for more than a quarter (three consecutive months).</i>
<b>Industry</b>	<i>Was the venture active or intended to be active in any of the following areas: Information and Communication technologies/ Solar technologies/ Wind technologies/ Biomass technologies/ Waste treatment technologies/ Grey biotechnology/ Other.</i>
<b>Legal form</b>	<i>At the moment of registration as a business, what was the legal form of the venture: BV/ CV/ Eenmanszaak/ NV/ V.o.f./ Other; Was or is the venture an independent start-up or a spin-off; At the moment of registration as a business was the venture registered in the form of a subsidiary.</i>

#### People

For the people part we asked the respondents for several characteristics about the people working for the venture during the phase of start-up. We defined that the people should be either founders, employees or external advisors. The separation between part-time and full-time commitment is at 30 hours, meaning that more than 30 hours of commitment is considered a full-time commitment.

Also an advisor is considered an advisor if he is paid to perform services. Therefore a befriended person giving advice to a founder is not being measured as an advisor; we focus on paid services.

We asked for each class of these people different characteristics, see table 3.

**Table 3: characteristics of people inquired in the questionnaire**

<b>Founders</b>	<i>Number of founders; area of expertise; start- and end date of part-time commitment in setting up the venture; start- and end date of full-time commitment in setting up the venture; gave up a job to start venture y/n; hesitance of giving up a job y/n; reason of hesitance or non-hesitance.</i>
<b>Employees</b>	<i>Number of employees; area of expertise; temporary or permanent contract; remained temporary or became permanent; hesitance of founder to make contract permanent y/n; start- and end date of part-time commitment in setting up the venture; start- and end date of full-time commitment in setting up the venture.</i>
<b>External advisors</b>	<i>Number of external advisors; area of expertise; date of agreement on performing a task; date of completing the task; performed multiple tasks y/n.</i>

### Finance

Finance is seen as a necessary precondition for starting a new venture as small as it may be. Finance was measured by asking about the characteristics in table 4 In the case of sponsors (in all cases this was subsidies) the respondents were asked about the usefulness of the subsidies. This was on a scale ranging from:

- Extremely useful: without the involvement of sponsors the venture would have failed.
- Useful: without the involvement of sponsors the venture would have been less successful.
- Neither useful nor harmful: while the involvement of sponsors was helpful, the venture would have succeeded without their participation.
- Harmful: without the involvement of sponsors, the venture would likely have been more successful.
- Extremely harmful: Venture failed because of the involvement of sponsors.

**Table 4: characteristics of finance inquired in the questionnaire**

<b>Owners</b>	<i>Number of owners; type of owners; date of realization of investment; date of actual first investment; performed another investment y/n; approach institutional investor y/n; investor invested y/n; usefulness of involvement investor; reason for no institutional investor.</i>
<b>Loans</b>	<i>Loan providers approached y/n; number of loan providers; type of loan provider; date of asking for loan; data of loan granted; performed multiple loan grants y/n.</i>
<b>Sponsors</b>	<i>Involvement of sponsors y/n; number of sponsors; type of sponsor; date of asking for funds; date of first endowment; performed multiple endowments y/n; provided other types of support y/n; usefulness of involvement of sponsor; if other support specify.</i>

### Product development

The product development is measured by asking the founders about the characteristics listed in table 5. Important to note it that the questions aimed at revealing the product development stage for which the venture was started. The period of product development is the period between the start of development and the moment the first working prototype was functional.

**Table 5: characteristics of product development inquired in the questionnaire**

<b>Product</b>	<i>Did or does the venture develop a product/ process/ service/ technology/ application/ other; development of product finished at venture start y/n; product development during venture creation phase y/n; start date of product development; end date of product development; interruptions of product development (#); duration of interruption.</i>
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### 3.4.2 INDEPENDENT VARIABLE

The independent variable in this research is innovativeness of the venture; in this research the aim is to uncover if the innovative strategy of a new venture can explain differences in the chain of start-up activities. The innovativeness can be considered as a condition instead of a variable since it is a “*strategic posture*”(Li & Atuahene-Gima, 2001, p.1124). The innovative strategy is embedded in the vision of the company and therefore not a multi-directional variable i.e. the order of activities during start-up does not change the degree of innovativeness, only the innovativeness could affect the start-up process.

For this research we distinguish innovativeness on a scale of three by questioning the innovative aim of the company’s product. This means that a new venture is innovative when its product is innovative. The measuring scale was as follows:

- (1) Traditional reproduction, similar versions have been available to potential customers beforehand;
- (2) Partly new improvement, only less sophisticated versions of the product have been available to potential customers beforehand;
- (3) Radically innovative, the product has never been available to potential customers beforehand.

To make a good assessment on the innovativeness we had three control questions:

- (1) We questioned if the products were either (1) new to potential customers or (2) already available to potential customers;
- (2) Which customer does / did the product address;
- (3) We also requested the founders to give a brief explanation of the product and the potential market, giving a better idea about the product position in the marketplace.

These notions taken together served as a check for the assessment of innovativeness, since the assessment of the entrepreneurs themselves sometimes were different. In some cases the entrepreneurs tended to think that their product was very innovative, however after assessing the product with the control questions in some cases this changed to a lower scale of innovativeness.

Important to mention is that in the following sections ‘traditional reproduction’ is referred to as *non-innovative*. The ‘partly new improvement’ is referred to as the *incremental innovative* and ‘radically innovative’ remains the same.

### 3.5 DATA ANALYSIS

The data analysis consists of a mix of univariate, bivariate and multivariate analysis. The small sample size is problematic for parametric statistical test, also the total sample of 24 cases is not normally distributed, and therefore in this research only non-parametric statistical tests were used. Since we have performed extensive recorded interviews with an explorative character, we obtained a more detailed account of the reasons behind the performance of activities by the founders. The complete dataset of samples consists of cases from two different industries, the IT and ET industry. In order to check for industry differences we also compare the ventures between these industries.

Because of the detailed information we use the opportunity to provide a qualitative account of the activities performed during the stage of venture creation and thereby explaining the differences. The qualitative description was guided by two types of data i.e. (1) the information from the questionnaire and (2) the recorded telephonic interviews together with the notes taken during the interviews. The structured questionnaire acts as a clustering mechanism for the data, revealing the concepts without the need to code transcripts of the interviews. The interviews served as background information to provide a more detailed account of the concepts; making the process at some points iterative between the questionnaire data and the data provided during the interviews. This made data interpretation more genuine towards the respondents’ answers.

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### 3.5.1 VENTURE CREATION LENGTH

The venture creation length was measured as a ratio variable in the amount of months. The measurement is split in three different lengths to reveal possible difference during the start-up process:

- (1) The complete venture creation length i.e. from the moment of the idea until the moment of sustainable profits;
- (2) The length between the moment of idea and the legal venture registration;
- (3) The length between the legal registration and the moment of sustainable profits.

The averages of the ventures creation lengths are categorized for the different scales of innovativeness as well as for the industries. These averages are represented in a table for the three different lengths. On these averages we performed two different non-parametric tests to support the findings i.e. Kruskal-Wallis and a Mann-Whitney test.

The Kruskal-Wallis test was performed to check for statistically significant differences between the non-innovative, incremental innovative and radical innovative venture creation lengths. The test was performed for all three separate stages previously mentioned. To check for statistical significant differences between the industry venture creation lengths we performed a Mann-Whitney test while this only considered two groups (ET and IT).

The similarities and differences between the averages are explained in a qualitative way with the data generated by the interviews. This form of analysis comes closest to a narrative analysis approach. This approach *“emphasizes the examination of the storied nature of human recounting events”* (Bryman, 2008, p.553). The aim was to give a rich and detailed description of the causes of the differences, since this data was available. The notes taken and the recordings of the interviews served as input for the analysis. The explorative character of this research fits the combination of quantitative analysis with a detailed qualitative description.

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### 3.5.2 PEOPLE

In this research we measured the type of people involved in the process of founding the venture and the moment they joined the process. We analyze the people in three different groups and on different aspects, these groups with their aspects are:

- (1) Founders: started a part-time commitment or a full-time commitment and did the founder change to a fulltime commitment;
- (2) Employees: were employees hired during the process of venture creation and under what circumstances;
- (3) Advisors: were any advisors hired during the process of venture creation and how many advisors were hired during this period.

These three groups are analyzed for differences between the non-innovative, incremental innovative and radical innovative ventures as also between the cases of the ET and IT industry. The similar and different aspects were highlighted and explained in a qualitative way, with a focus on the causes for the differences. The analysis is mostly a descriptive account fed by the data from the questionnaire (time intervals and duration) and the detailed information of the interviews, resembling the narrative analysis approach explained in the previous section. However for the advisor section we provided a frequency table giving a basic overview of the amount of advisor hired by the ventures in each category.

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### 3.5.3 FINANCE

The analysis of the use of finance during the venture creation process is split in three types of investment with each of these investments having their own characteristics analyzed:

- (1) Owner investment: analysis of the number of investments;
- (2) Loan providers: the use of loan providers;
- (3) Subsidy: the use of government subsidies.

In the owner part we made a cross-tabulation of the times the owner invested in his company, providing a basic picture of the number of investments. The number of loan providers was very low and therefore only qualitative analysis was applied to explain the differences between the several cases having used a loan. For the subsidy part we made a frequency table listing the number of ventures having obtained a subsidy in each category. A detailed qualitative description provides some nuance to the frequency table.

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### 3.5.4 PRODUCT DEVELOPMENT

The ratio variable of product development was measured as duration in number of months from the start until the end. We have made a cross-tabulation of averages and variances for each of the scales of non-innovative, incremental innovative and radical innovative ventures as also between the cases of the ET and IT industry. The picture of averages reveals the differences and interrelations between the groups and industry differences. A detailed qualitative description of the causes for the interrelation between the lengths of product development.

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### 3.5.5 VENTURE CREATION SEQUENCES

The venture creation sequences are visual representations of the mean values ordered by the groups of venture creation period, people, finance and product development. These are the means of activity starting dates measured during this research. We represent the averages in one graph to make the sequence of the activities visible and thereby compare the ideal-typical sequences between ventures with different innovative strategies as well as between the different industries. A detailed qualitative description reveals the interrelation between the separate processes e.g. the relation between the average starting date of investments and the average starting date of product development. Also the qualitative description allowed describing the interrelations between the different scales of innovativeness as well as comparing the differences between the industries.

## 3.6 RESEARCH QUALITY

Data quality is secured in multiple ways throughout the surveys and interviews. Using the interview-style made it possible to avoid non-responsbias because respondents were urged to think thoroughly about their answers. The urge of the interviewer does allow for recall bias of dates by the respondents, however this is minimized by trying to verify the respondent answers in multiple ways. For example, asking about the season to which the date refers and recalling to the timeline of activities made respondents verify from a different perspective if the mentioned answer was right. The content and nature of the questions avoids the tendency to give socially-desirable answers, while mostly starting- and end-dates are questioned and respondents cannot estimate what a positive or negative answer could be.

Further reliability of the measurements was reached by not using multi-barreled questions, having multiple options with questions, reducing interpretativeness. If multiple answers to a question were possible then respondents could indicate multiple options at once or use an open option. The survey questions were explained more extensively to reduce the amount of interpretativeness by the respondents. The telephonic interviews allowed to ask for more detailed information, leaving the researcher to judge the answers related to the questions. Internal reliability was reached by inter-observer consistency, the answers were discussed with another research participating in this research and agreed upon what was observed.

The validity of measurements is secured on three facets i.e. construct validity, internal validity and external validity (Bryman, 2012). The construct validity is secured by the theoretical framework which forms the justification of the survey questions. Therefore the measured concepts really reflect the concepts we aim to measure. The internal validity with regard to the correlation between the variables of innovativeness and start-up activities are embedded in the theoretical framework. However the variable of innovativeness is considered more as a condition than a variable. We hypothesize that a venture starts with an innovative strategy and the start-up process acts accordingly. The other way around; different actions during the start-up process do not make a venture innovative. Therefore cautious inferences about the difference between venture creation processes between innovative and non-innovative can be made.

The external validity, dealing with the representativeness of the findings, is weak due to the form of non-probability sampling. Therefore the measurements are not representative for the population in this research due to the sampling strategy applied. Also the selected industries have some industry specific regulations affecting the measurement. For instance, in the wind industry obtaining a *permit* to build a wind-turbine is time consuming and weighs heavy in the success of the venture. However, as mentioned we hypothesized that innovative companies all have to deal with industry specific regulations (acknowledged by the innovative companies in all the investigated industries). Therefore the outcomes of this research give an *indication* of venture creation process within the investigated industries and possibly also for other industries with largely the same characteristics.

## 4 RESULTS

### 4.1 VENTURE CREATION LENGTH

Below a detailed explanation will be provided of the results for venture creation lengths; divided in three stages i.e. (H1a) the overall venture creation length, (H1b) the process length from ideation until registration and (H1c) the process length from registration until sustainable profits. One non-innovative case had an extremely long venture creation length of 121 months (NL.0030) ending up in a failure due to the fact that the owner could not obtain the right permits. This case is excluded from the venture creation length analysis, since the permit period make it a peculiar case skewing the analysis. All the hypotheses regarding venture creation length are supported (see table 6). These detailed explanations also give insights into the industry differences, for which no hypotheses were tested. All the venture creation lengths are summarized in table 1x in the appendix.

Table 6: Hypotheses venture creation length

Hypothesis	Result
H1a: The more innovative the venture strategy, the longer the venture creation process.	Not supported
H1b: The more innovative the venture strategy, the longer the period of ideation before registration of the new venture.	Supported
H1c: The more innovative the venture strategy, the longer the period of maturation until the moment of sustainable profits.	Supported

#### Total venture creation length

There are minor differences observed in the average venture creation length. The incrementally innovative ventures take up the least amount of time during the whole process of venture creation, while the radical innovative ventures require the longest time. Interesting to see is that the average length from the moment an idea is born until the registration takes up the least amount for radical innovative ventures, meaning that the founders decide earlier to register their company measured from the moment they came up with the venture idea. We observe that from the moment of registration the radical innovative ventures take the longest to attain sustainable profits.

The minor difference between the different innovative ventures is supported by the result of the Kruskal-Wallis test, showing a p-value of 0,424. Thereby we did not find a statistically significant difference. The Mann-Whitney test used for testing the difference between the industries provided a p-value of 0,07, leading us to conclude that these show statistically significant difference. For both the test the cutoff p-value of 0,10 is used, because of the small n. We checked for robustness of the findings with the outlier case (NL.0030), for which the results are to be found in the appendix. Hereby we cannot confirm hypothesis 1a.

Table 7: Average venture creation times in months

	Average venture creation length	Average length idea - registration	Average length registration – sust. profits
<b>Non-innovative</b>	30,9	16,2	24,7
<b>Incremental</b>	26,7	12,3	11,1
<b>Radical</b>	40,9	11,8	29,1
<b>ET</b>	47,0	20,6	23,1
<b>IT</b>	27,0	9,9	17,1



### **Idea to registration**

In general it takes around 1 year for an idea to be turned into the legal form of a venture (see table 7). The non-innovative ventures require nearly 1,5 year in this stage. The most interesting we found was that the radically innovative ventures all had a different approach from the incremental and non-innovative ventures. All of the radical innovative ventures developed products for which the market potential was unclear and therefore had to rely on the technology. All the founders had started product development before the venture registration. The viability of registering the new venture depended upon the progress of product development. A growing believe in a successful final product created viability for starting a new venture. At a certain threshold the founders decided to legally register the venture.

The longer period for non-innovative ventures can be explained by the ET ventures making up for half of the non-innovative ventures. The ET industry is characterized by a long period from the moment the idea was born until registration of the new venture. The reason for this is the fact that in the non-innovative ET cases the ventures aimed at exploiting a wind turbine or biomass plant. These projects in all cases required multiple parties to be aligning their ideas. For example, one wind turbine park (NL.0057) required the founder to come to an agreement with the people living in the area. This required the founder to hire a mediator in order to convince the residents of the benefits. In two other wind turbine cases (NL.0049; NL.0050) there were multiple founders needing to align their ideas and decide upon the share of profits. All these processes occur during the time before a venture is registered.

For the IT industry the time from idea to registration is considerably lower compared to the ET industry. We can explain this difference by the low barrier to start a software developing company in the IT industry. As many respondents in the IT industry answered that software developing ventures have no obligation to comply with specific industry regulations. Basically anyone with a computer and software developing skills can start a venture at home. Therefore the financial barrier is very low next to a low administrative barrier to comply with regulations.

Disregarding the industry differences, we observed that the time between ideation and registration is being used for alignment of ideas and checking the feasibility of a new venture. This holds for all ventures i.e. non-innovative to radical, one founder or multiple founders, capital poor or capital intensive. For the non-innovative and incremental cases the founders mentioned that having a potential market was the most important push to decide upon registration of the new venture. Most of these founders had contact with potential clients before registration of the venture, which made the ordeal of a legal registration viable. Some of the potential clients even urged the founder of a venture to start a venture and gave a purchase guarantee for a specific period.

The difference for the period towards registration between the different innovative ventures is supported by the result of the Kruskal-Wallis test, showing a p-value of 0,068. Thereby we find a statistically significant difference. The Mann-Whitney test used for testing the difference between the industries provided a p-value of 0,07, leading us to conclude that these have a statistically significant difference. For both the test the cutoff p-value of 0,10 is used, because of the small n. Hereby we can confirm hypothesis 1b.

### **Registration to sustainable profits**

The average length of the process towards attaining sustainable profits varies more for different strategies of innovativeness. For non-innovative firms it takes on average 2 years to reach the stage of sustainable profits, while an incremental innovative firm requires less than half of the time. This difference can largely be explained by firm characteristics i.e. the service providing and software developing ventures immediately make profits due to the low start-up costs, while the physical product developing company has to invest more in materials and machinery after registering the firm. Further the sample of non-innovative ventures consists for half of ET

ventures exploiting wind turbines or biomass plants. These types of companies spend most time waiting on permits to be issued, thereby extending the period before the wind turbine or biomass plant can be built. This process takes place during the period between registration and sustainable profits, since permits can only be issued to firms with a legal registration. The incremental innovative firms have a relatively short period of attaining sustainable profits.

The radical innovative ventures have a relatively long period before reaching the stage of sustainable profits; on average 29 months. This is largely due to long periods of product development still taking place between the moment of venture registration and sustainable profits. The radically innovative products required more time to develop before a working prototype could be unveiled and subsequently made profit with, thereby ending the venture creation phase.

Between the industries we found significant differences for the time to reach sustainable profits from the moment of registration. This takes the IT industry only about 10 months while the ET industry requires over 20 months. As explained previously, the ET industry has longer periods of obtaining permits before they can start with their project, delaying the moment of making profit. The IT industry is characterized by the fact that especially the software designers perform product development before registering their company. Also sample of IT cases contains service providing ventures, which start providing their service - and making profits - immediately after registration.

The differences towards the period of sustainable profit between the different innovative ventures is supported by the result of the Kruskal-Wallis test, showing a p-value of 0,0027. Therefore we can conclude that the different innovative ventures have a statistically significant different venture creation period. The Mann-Whitney test used for testing the difference between the industries provided a p-value of 0,37 leading us to conclude that there is no statistically significant difference. For both the test the cutoff p-value of 0,10 is used, because of the small n. Only focusing on the innovativeness, we can confirm hypothesis 1c.

## 4.2 PEOPLE

Below a detailed explanation is provided about the people having assisted during the venture creation processes of the sampled cases. We found evidence for all the hypotheses that innovative ventures require more advisors, founders as well as employees during the venture creation stage (see table 8). First the results regarding advisors (H2a) will be explained, followed by a paragraph on founders (H2b). For the founders we also dealt with the fact if the venture started as a part-time or full-time commitment, which was not part of the hypothesis. The last paragraph deals with the results on employees (H2c). If noteworthy, these detailed explanations also give insights into the industry differences for which no hypotheses were tested.

**Table 8: Hypotheses people involvement**

Hypothesis	Result
H2a: The more innovative the venture strategy, the more advisors are involved during the venture creation process.	Supported
H2b: The more innovative the venture strategy, the more founders are involved during the venture creation process.	Supported
H2c: The more innovative the venture strategy, the more employees are involved during the venture creation process.	Supported

### Advisors

In total 18 of the 24 ventures in the sample required on or multiple external advisor during the venture creation phase. Most remarkable about this is the fact that the other new ventures apparently did not need an advisor, while one needs a notary to register the company officially in the Netherlands. In three of these cases the founders used a befriended solicitor to do the work free of charge. This is an interesting observation since

the founders already use their network during the early stages of the venture. In the other three cases it is unclear why there was no external advisor involved, even after jogging the memory of the respondent there was no response on this question.

The sample of non-innovative and incrementally innovative new ventures revealed a resemblance in the pattern of hiring advisors. The first advisor hired was either an accountant or a notary performing the necessary measures for legal registration. The non-innovative cases where multiple advisors were hired, we found a combination of a notary and a financial advisor (accountant). An exception on this is the case of a biomass plant (NL.0030) only requiring a process technologist.

Mostly the radical innovative ventures require multiple advisors (see table 9). This can be explained by the technological intensity of the projects and the knowledge needed for setting up the venture. In four of the radical cases the founders hired a marketing expert or business developer to help create the new venture. The founders really focused on developing their product. In the other radically innovative cases it was the other way around; the founders focused more on setting-up the business and hired the technological experts to perform product development. In one case the founders (NL.0075) even had nearly no technical knowledge about their product and hired knowledge to develop their product, while the founders had the ideas and professional expertise to run the business. From these notions we can infer that founders of radically innovative ventures acknowledge their knowledge limitation more and acknowledge the need to hire this type of knowledge. This notion is supported by founders of three radically innovative ventures (NL.0053, NL.0075, NL.0083). The preceding notions confirm hypothesis 2a.

**Table 9: Frequency of advisor divided by innovativeness**

	<b>1 advisor</b>	<b>2 advisors</b>	<b>3 advisors</b>	<b>4 advisors</b>	<b>5 advisors</b>
<b>Non-innovative</b>	7	3	1	-	-
<b>Incremental</b>	4	2	1	-	-
<b>Radical</b>	7	5	4	3	1

### **Founders**

The founders section describes the individuals who assisted chiefly in setting up the venture. As one might expect in all cases the founder(s) started from the moment the idea was born to create a new venture. In 17 of 24 cases multiple founders assisted during the start of the venture. Showing that the idea to start a venture is often a multi-person decision in which the founders start putting effort in the business at the same moment. The multi-person start of the venture is along every level of innovativeness, however table 10 reveals that non-innovative ventures are more often self-employed, which also holds for some of the incremental ventures. The most remarkable is that all of the radically innovative ventures were started by multiple founders, thereby confirming hypothesis 2b.

**Table 10: Number of founders involved**

	<b>1 founder</b>	<b>Multi-founder</b>
<b>Non-innovative</b>	4	5
<b>Incremental</b>	3	4
<b>Radical</b>	-	8

In 5 cases the founder(s) started fulltime from the beginning of the idea creation, of which 3 incrementally innovative and 2 radically innovative. In the other 19 cases the founders started the company as a part-time occupation; in 9 of these cases the founders changed to a full-time commitment to their company. The full-time commitment started on average after 22 months with a standard deviation of 17.2 months. The highest recorded was 60 months (NL.0066) which was an incremental innovative venture of five founders thereby able to split the effort for a long period of time, the lowest recorded transition period was 5 months (NL.0053, NL.0098).

The non-innovative ventures all started and *remained* a part-time occupation, except for 2 founders shifting to full-time dedication. This can mostly be traced back to an industry difference of ET companies. These ventures are aimed at exploiting a wind-turbine or another form of 'green' energy production, requiring a relatively little amount of time.

Of the 7 incremental innovative ventures, 3 founders (NL.0009, NL.0019, NL.0023) started a full-time occupation. This was for various reasons: (1) one of the founders lost his job and therefore started a full-time commitment, (2) another founder noticed an opportunity to create rent noticed during the occupation with his employer and (3) the last founder always wanted to start an entrepreneurial endeavor and believed it was his time to start a business. The remaining four incremental innovative ventures started as part-time occupations of which two stayed part-time during the venture creation phase. The founders of the two transition ventures (NL.0066, NL.0102) also performed other occupations but shifted to full-time partly because their venture required an increasing amount of time. They believed at a certain point that they would not be able to combine this with the occupation of their employer as also their venture created enough rent to sustain their lives. The same story goes for the two cases that remained part-time (NL.0052, NL.0060) during the venture creation process. However only after the venture creation stage the ventures became a full-time occupation.

Of the 8 radical innovative ventures 2 were started (NL.0083, NL.0085) as a full-time occupation by their founders, most notably is that these 2 ventures are among the most capital- and knowledge intensive ventures in the sample. The founders of these 2 ventures are highly educated individuals with a strong dedication to their product. For both ventures the premise holds that they had no clue about their market potential at the start of the venture creation phase. It was their strong believe in successfully developing a new technology which was the drive for the founders to commit themselves full-time to the venture.

The remaining 6 radical innovative ventures were started as a part-time occupation of which 4 switched to a full-time commitment during the venture creation phase. These 4 ventures were all IT ventures which started with the premise that they could develop a radically new product, however for all of these ventures counts that the founders started committing time next to another full-time occupation. The founder of 1 venture (NL.0053) had a temporary contract with a university and was therefore constrained to completely dedicate time to his venture. The founders of the remaining three transition ventures had occupations with their employers and gradually shifted towards a full-time occupation. Of the two radically innovative companies which remained a part-time occupation during venture creation; one stayed part-time (NL.0026) not requiring more time. The other (NL.0051) switched to full-time commitment after the venture creation phase because the founders had occupations with the university, which also provided them with income and facilities to develop their product.

On the industry level we discovered that only 1 of the 8 ET venture founders started with a full-time commitment. As explained above, this is due to specific characteristics of the ventures in the industry. The fulltime commitment of the ET venture (NL.0085) can be explained by the fact that the founders were confident about the development of their product and therefore not hesitant for a full-time commitment. After recognizing that only 1 ET company remains part-time we conclude that mostly the IT companies are making the transition towards a full-time commitment. This can be explained by the fact that most IT software developers start next to their previous occupations. In four cases (NL.0004, NL.0098, NL.0102, NL.0104) the founders were discontent with their occupation at the time and were convinced that they could make a better product than they did at their employer. In two of these cases the founders blamed the inflexibility of the employer's management for dramatically change the product they were working on, while the other two cases had a completely different product in mind of which they believed they could make sufficient rent to live from. Interesting to know is that three of these four cases are innovative companies.

## Employees

In the total sample we found only 8 new ventures employing personnel during the venture creation phase. Only one of the non-innovative ventures (NL.0029) employed personnel during venture creation, which can be explained by the experience the founders already had with the personnel they hired. This reduced the doubts about hiring personnel, besides the fact that personnel were needed for the rapid growth. Taking a closer look<sup>4</sup> at the group of innovative ventures teaches us that 2 incrementally innovative and 5 of 8 *radically* innovative cases hired employees during the venture creation phase. Of the incremental innovative cases 2 of 7 ventures required employees during venture creation, while the other (5 of 7) ventures remained sole proprietorship or acquired personnel after venture creation ended. For the radically innovative cases we found that in the other three remaining cases (3 of 8) the employees were (1) hired just after the venture creation phase ended, (2) employees were hired on contract basis and therefore appeared in the survey as external advisors or (3) the venture remained a sole proprietorship with the founder being self-employed.

Comparing the innovative against the non-innovative ventures we discover that the innovative ventures provide jobs more often and earlier during the process of venture creation. Especially the radically innovative ventures take the lead in this observation; all the ventures employed people eventually, disregarding the one venture with the legal form of sole proprietorship not allowing employees to be hired. Hereby we can confirm hypothesis 2c.

If we look at the different industries we see that the only 1 of the ET ventures is present, meaning that the IT ventures more often employ personnel during the start-up process. This can be explained by the characteristic of the ET ventures; as explained this set of samples consist mostly of energy producing ventures requiring small amounts of time making the addition of employees obsolete. For the IT ventures with employees we identify two typologies i.e. (1) rapid market expansion and (2) knowledge intensive. The ventures with rapid market expansion had a large market potential and therefore required extra personnel. The knowledge intensive ventures needed employees to proceed the development of their product. These employees tend to stay shorter with the company compared to the employees attracted by 'market expansion' ventures.

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<sup>4</sup>See table 1x in the appendix for the details

### 4.3 FINANCE

Below a detailed explanation is given about the involvement of finance during the venture creation process. We tested four hypotheses, which are all (partially) supported by the findings (see table 11). The explanation of the results is guided by the different forms of capital provision measured in this research. First the owner investments are explained, followed by subsidies and the final paragraph deals with loan providers. Hypothesis 3d will not be explained in the below paragraphs, however this will follow from the following section dealing with the venture creation sequences. The detailed explanations also give insights into the industry differences, for which no hypotheses were tested.

In general we see that the first investments are made at the moment of registration. For the founders the legal registration seems to legitimate their venture, thereby marking the moment to start investing capital in the company. We recorded only several occasions in which investments were made before venture registration, which were investments directed at product development.

**Table 11: Finance hypotheses**

Hypothesis	Result
H3a: New ventures use personal investments before turning to external financiers.	Supported
H3b: The more innovative the venture strategy, the more often a subsidy is required.	Supported
H3c: The more innovative the venture strategy, the less often loan providers are required.	Partially supported
H3d: The more innovative the venture strategy, the earlier a form of capital is needed during the venture creation process.	Supported

#### Owner investment

In all of the cases the owners invested in their own company, see table 12. In all of these cases the founders were also the *owners* of the venture during the creation phase, with two ventures having an additional owner only providing capital and not dedicating time to the start-up process. The first time of owner investments was in nearly all cases at the moment of registration. The only peculiarity is that 7 of the 24 ventures got a reinvestment by the owners for varying reasons (new equipment and prolonging product development). The results did not reveal significant differences on this subject for different innovative ventures or between the different industries (see table 12). However, we can confirm hypothesis 3a.

**Table 12: Owner investment divided by innovativeness and industry**

	First investment	Second investment	Third investment
<b>Non-innovative</b>	9	3	2
<b>Incremental</b>	7	1	1
<b>Radical</b>	8	3	2
<b>ET</b>	8	3	2
<b>IT</b>	16	4	3

#### Subsidy

Government subsidies act as financial aids for the ventures obtaining these funds. The respondents explained these different subsidy schemes, which can largely be divided in two industry subsidies:

- The ET ventures in this research obtained a production subsidy on the amount of energy the produce;
- The IT ventures in this research obtained different forms of development subsidies.

The different subsidy schemes provide financial compensation for the working hours directed at development of an innovative product (WBSO) or the expenses made for producing the first prototype of an innovative product (RDA).

In this sample 12 of 24 ventures obtained subsidies with a large proportion of radical innovative firms getting these funds (see table 13). Nearly all radically innovative ventures obtained subsidies, without regard to the industry in which the ventures operate; already confirming hypothesis 3b. Opposite to that are the non-innovative ventures which have their explanatory variable in the ET industry, while no single non-innovative IT venture was granted a subsidy. The skewness can be explained by the environmental friendly energy producing wind-turbines and biomass plant. These ventures obtain a financial compensation for the electricity they produce in order to make their energy production profitable. All the founders of these ventures indicated that the subsidy was extremely useful for the venture creation process, since the bank loan would not be granted if the subsidy was not granted. Meaning that the subsidy was a deal-maker or a deal-breaker for the continuation of the venture creation process.

Only 2 of 7 incrementally innovative new ventures (NL.0066 , NL.0102) were granted subsidies, both these cases were from different industries. Also both ventures obtained development subsidies, since the product they development was innovative enough to acquire this form of financial compensation. The ET firm (NL.0066) acquired five different subsidies on multiple levels i.e. local and national to develop the biomass plant. Interesting to know in this case is the fact that the subsidies were considered extremely useful as the respondent in this case said: *“the barrier to invest founder capital to obtain all the permits would have been too high; the subsidies lowered the founder costs and thereby also the perceived risk to invest.”* The founder further told us that the project would else have been cancelled in an early stage. The incrementally innovative IT venture (NL.0102) just obtained financial compensation for the hours appropriated to developing their product.

The data in this research reveal that 6 of 8 radically innovative ventures obtained subsidies during the venture creation phase, also the respondents of the remaining two ventures indicated that they obtained subsidies after the venture creation phase. Of the 6 ventures; 4 found the subsidy very useful, 2 found it extremely useful. We spotted two general considerations of usefulness i.e. (1) the venture creation process would have failed and (2) the product development would have taken much longer, consequently extending the venture creation process. In 4 cases where the subsidy spurred product development the founders were hesitant in saying that their venture would have failed without subsidies, because the chain of actions would probably have been different without the subsidy grants. The founders mentioned that in retrospect an earlier completion of the product *could have* been vital to the survival of the firm. Consequently the product had an earlier market introduction thereby generating income earlier during the venture creation process.

For one of the ventures (NL.0053) the subsidy was vital in the early stage, because according to the founder *“no venture capitalist or business angel would have invested money in the product idea while there was no market yet.”* In this case the founders had developed technology for cryogenic cooling but no idea what to do with it, although they had a firm believe that it would find its appliances. Most notably is the fact that exactly the same story applies to the other radically innovative new venture which found the subsidies extremely useful. The founder in this case (NL.0083) responded that the subsidy was vital to bridge the first period of product development and the venture creation process, since in this period no other forms of finance could be acquired and no income was generated yet. The venture developed new technology for digital signal processors of which the market potential was unclear, but the technology was radically new to the world. These two radically innovative ventures are an example of technology push, but at the same time also an example that this type of innovative venturing cannot rely on commercial investments. The survival of these ventures has relied heavily on the granted government subsidies, showing that these subsidies are valuable to spur innovative ventures.

**Table 13: Frequency of subsidies granted divided by innovativeness and industry**

	Number of ventures with subsidy granted
<b>Non-innovative</b>	4
<b>Incremental</b>	2
<b>Radical</b>	6
<b>ET</b>	6
<b>IT</b>	6

### Loan providers

Obtaining a loan is not a common way of venture financing in the Netherlands. Only 5 of the 24 ventures obtained a loan (3 bank loans, 2 personal loans) and most interesting about this is that the three bank loans were granted to wind-turbine exploiters. These were specially tailored loans which heavily relied on the subsidy scheme to ensure the return on investment for the bank. The other two companies respectively obtained a loan from a relative and a spin-off company (radical innovative venture). Since only 1 one case a radically innovative company was involved we can confirm hypothesis 3c. However, since comparison with the small number of loan provisions is spurious; we can only partially support the hypothesis.

Noteworthy to say is that every single respondent replied on this subject that the banks were either not willing to finance their new venture or the founder did not approach a bank. The founders felt that they did not have a chance to obtain finance from the bank. The respondents all mentioned that obtaining a loan from a bank was difficult or they did not attempt, because fellow entrepreneurs had warned them for the difficulties. Disregarding the fact that a bank loan is a hassle to obtain or not; all entrepreneurs had a negative stance against the banks, even the ones that did obtain the bank loan. Important to remind is the fact that this dataset contains companies founded in years of relative economic stability and economic turmoil, therefore the economic conditions cannot be the significant factor in the stance towards the banks.

## 4.4 PRODUCT DEVELOPMENT

Below a more detailed description is given for the differences of the product development stage during the venture creation stage. The only hypothesis is supported by the findings, revealing that a more innovative strategy requires a longer product development stage (see table 14).

**Table 14: Hypothesis product development**

Hypothesis	Result
H4: The more innovative the venture strategy, the longer the product development stage.	Supported

The averages between non-innovative, incremental and radical do not reveal dramatic differences. Product development overall takes up to 28,5 months. Further we see that incremental ventures dedicate the least time to product development before having a first prototype. However the variance between for the non-innovative and incremental ventures is relatively high, with two causes: three outliers and industry differences have a great influence on the average.

The three outliers are NL.0030, NL0057 and NL.102. The first two are both non-innovative ET ventures, the third venture is an incrementally innovative IT venture. Both the ET cases had difficulties obtaining the necessary permits for building a biomass plant (NL.0030) and a wind turbine (NL.0057). The product development period has been seriously extended for coping with government regulations. The IT venture (NL.0102) started product development next to providing consultancy services, thereby making the product development not his main objective. For these reasons we chose to also represent the results without these three outlier cases.



Without the outliers we can see that the radical innovative ventures require over 5 times longer to develop their product compared to incremental innovative ventures. We find the non-innovative ventures half-way with over 15 months of product development on average. The difference can be explained by the type of product the venture delivers; the incremental ventures are all service providers, which takes less time to develop. The non-innovative cases are mixed with service- and product providers.

The industry differences can be explained by the characteristics of industry processes. The ET industry is characterized by 'material' product development and obtaining permits to build a wind turbine or biomass plant. The permit procedures are time consuming and meanwhile little development activities take place. In one case (NL.0066) the venture had to perform over 30(!) individual small-scale tests to obtain one of several permits. All of the founders in the ET industry complained about the lack of knowledge with local and regional governments to perform rapid decision making regarding this type of projects, while these projects are supported on a national level. The founders all suggested that policymakers should align the common goals and make regulations flexible enough to start these types of projects.

Most interesting to see here is the fact that the ET ventures require significantly more time to develop their product compared to their counterparts in the IT industry. The sample of ET ventures has a long product development stage due to the application periods of the permits required to exploit a wind-turbine or biomass plant. Also for two of the ET ventures the product development lasted until after the end of venture creation, both of these periods are not recorded in the data. One of these companies (NL.0066) we regard as a failure case. In this case everything was in place (permits, building plans, site etc.) to build a biomass fertilizing plant, however the founders were looking for finance for nearly a year at the moment of investigation.

The data reported by the other case (NL.0085) with product development not finished during venture creation, can be explained by the interpretation of the respondent. Basic chip architecture was already developed and sold, however this was not the product with which the company intended to go to market. Development of radically innovative chip architecture was started before registration of the company. This radically innovative chip architecture was the incentive to start the venture. The basic chipset was merely a component of the radically innovative chipset.

One of the incremental innovative ET venture founders (NL.0066) suggested that the government should implement 'deregulated areas' to bring into fruition innovative projects. Innovative projects generally use ground-breaking techniques of which the impact cannot be assessed. It is up to the founder to prove that the project will not cause any harm, leading to time and capital consuming test periods. According to one of the founders (NL.0066) the outcomes are also susceptible to interpretations of the different governmental levels (local, regional, national), thereby making a 'positive' outcome not by definition an approval for prolonging the project. While the tests consume time and capital and also the chance of getting approval is risky; the chances of getting finance diminish. This recorded example shows how bureaucracy can cease innovative product development to take place. The last notion is being emphasized by two independent radically innovative founders (NL.0053; NL.0085) mentioning that in hind-sight they would have earned more by just working for an employer with the knowledge they had. They felt that the government makes it unnecessarily difficult for innovative projects to prosper that they thought about ceasing the venture because of the bureaucratic stance of the government.

Table 1: Average times of product development in months

	Average in months	Variance	Averages in months (excl. NL.0030;NL.0057;NL.0102)	Variance (excl. NL.0030;NL.0057;NL.0102)
<b>Non-innovative</b>	35,9	1539,8	15,3	263,9
<b>Incremental</b>	19,5	1191,9	5,8	82,2
<b>Radical</b>	27,6	484,3	27,6	484,3
<b>ET</b>	47	1842,4	21,7	446,9
<b>IT</b>	18,6	619,1	14	296,6

#### 4.5 VENTURE CREATION SEQUENCES

Below a description and visualization is provided for the ideal-typical sequences we distilled from the data by combining the average values on all the core variables we measured. These sequences reveal the order of activities performed on average by ventures with different innovative strategies during the venture creation stage. The description provides an explanation for the order of the variables and thus the reasons behind the composure of the venture creation sequence. Table 16 is important for reading the graphs, because the different core variables are displayed on different heights on the y-axis.

First the differences between the sequences of non-innovative and innovative ventures will be dealt with, which is the focal point of this research. Following on that the individual sequences of non-innovative, incremental and radical innovative ventures will be dealt with. To check for industry differences we added the ideal-typical sequences of the IT and ET industry.

Table 16: legend for the timelines

Y-axis label	Referral
4.	Product development period
3.	Different investors
2.	People involvement
1.	Venture creation process

#### Differences between sequences

Between the different innovative strategies we see some differences in the ideal-typical sequences for starting a new venture. The most notable differences have been dealt with in the previous sections. However the most notable difference we can identify here is the fact that the product development takes longer as the measure of innovativeness increases. Thereby we can confirm hypothesis 4.

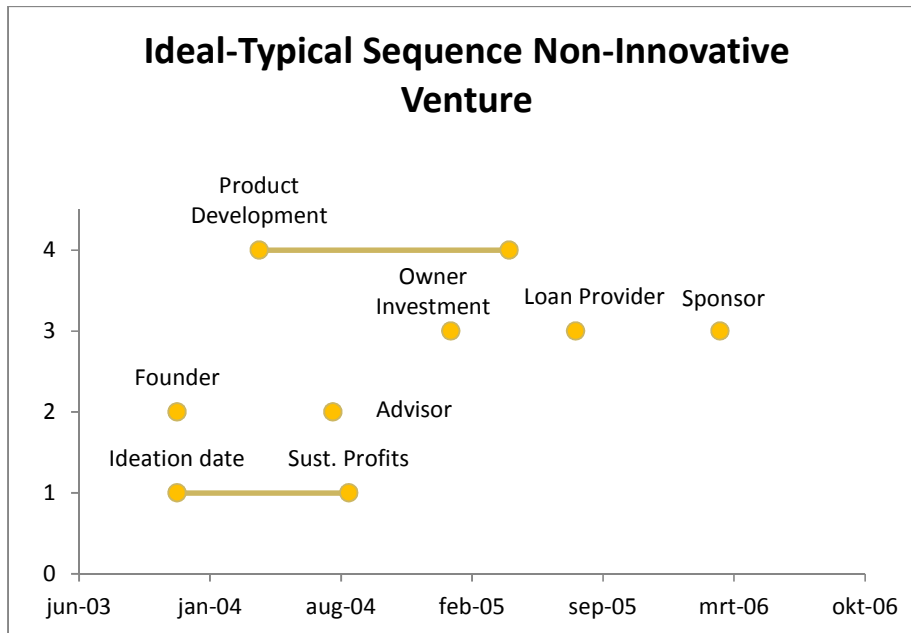
The sequences reveal that the radical innovative ventures most activities happen during the product development stage. Looking at the order of activities we see that non-innovative ventures resemble radical innovative ventures in the order of activities. It is the incremental innovative ventures which have a different order of activities, by attracting subsidies (sponsors) before the owner invests in the venture. Also an advisor is attracted before the founder, which in reality cannot be the case (since the founder starts the venture process). However it does indicate that the incremental innovative ventures involve an advisor early during the process. The similarity between the non-innovative and radically innovative venture sequence indicates that the order of activities does not differ for ventures with different innovative strategies.

#### Non-innovative

For the non-innovative ventures the founder starts straight from the beginning followed by an advisor. In one case (NL.0029) an employee was hired, however we excluded this from the sequence since this one case would create the illusion that the average moment of hiring personnel counts for all non-innovative ventures. We

have also excluded the outlier data about the product development as described in the product development section.

For the people part the sequence is that the founder is first involved, as one could expect, and at a later stage an advisor is involved. Notable is that the advisor is only involved after the product development has started. Usually the first time an advisor is involved this will be a notary assisting with the legal registration of the venture.



Regarding finance it is interesting to see that on average the venture is financed after the moment sustainable profits are attained. Also the first moment of investment is performed near or after the end of product development. These two notions reveal that the non-innovative venture does not depend on capital during the venture creation stage and also the product development is not a capital intensive activity. This can be explained by the nature of the non-innovative firms. Most non-innovative firms provide a service, such as web design or making applications while others make software products. These firms only need a computer and knowledge to provide their service or to make a 'virtual' product and therefore already have these ingredients before the idea has arisen to start a new venture.

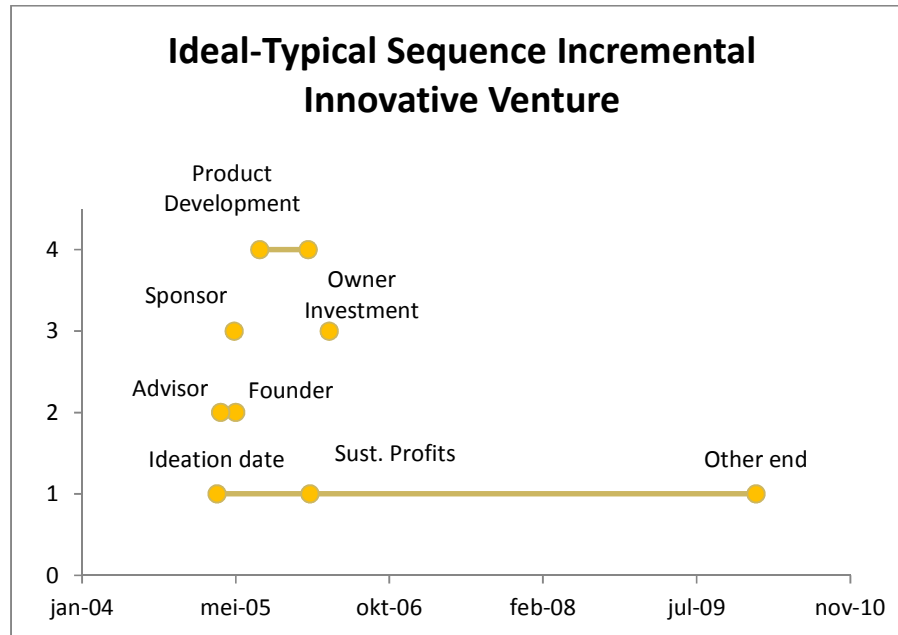
Another peculiar observation is the fact that on average obtaining subsidy is the last activity regarding financing. Obtaining a loan comes before subsidies, meaning that these ventures either cannot find it hard to obtain a subsidy during venture creation or the founders do not put emphasis on obtaining these government grants.

Peculiar for the non-innovative ventures is the fact that product development still takes place after the average venture has attained a sustainable profit i.e. the venture creation end. This can be explained by the fact that a large proportion of ventures perform consultancy assignments during the first stage of the venture creation process. These assignments generate profit for the company, but these profits are not attained by the product they developed (except if the core competence is consultancy).

### Incremental innovative

Also with the incremental innovative ventures in only one case (NL.0023) an employee was hired, which was excluded this from the sequence for the above described reason. We have also excluded an outlier in the product development data as described in a previous section. In the incremental innovative sequence we also observe the possibility for dissolved ventures, indicated by 'other end.'

For the people of an ideal-typical incremental innovative venture we observe that an advisor is involved just before the founder starts with the idea to start the venture. So the first advisor is involved early on in the process, fitting the observation that a notary is involved for the legal registration of the firm.



The finance part is interesting in the sense that subsidies are acquired before the owner invests in the company. Even more interesting is the fact that no loans are involved for starting an incremental innovative company.

Product development takes place in a relatively short time interval. Looking at the sequence of activities before the product development starts we observe that subsidies are granted and an advisor has been involved in the company. The owner invests only after the product development stage. Further we notice that the sustainable profits are generated simultaneously with the end of product development. Meaning that the venture creates profits before the product is finished, since sustainable profits are defined by three months of consecutive profits.

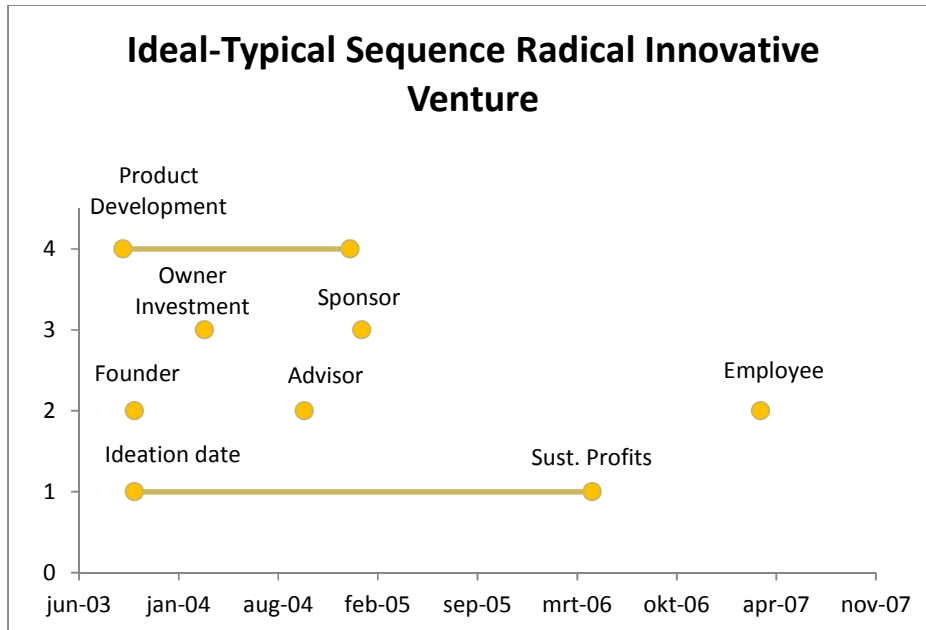
### Radical innovative

For the radical innovative ventures we have excluded the appearance of a loan provider since this was only present in one of the cases, thereby avoiding a bias in the interpretation of the sequence. As one might expect the founder is involved straight from the moment the idea for a venture appears.

The advisor is hired later as well as employees. The relatively late moment for hiring employees can be explained by the fact that in most ventures the employees are being hired towards the end of venture creation.

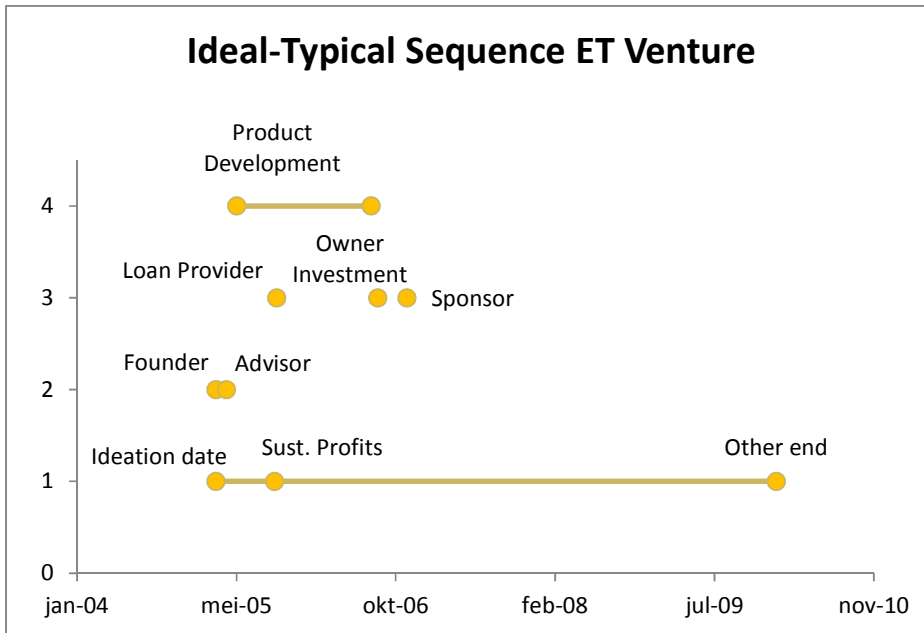
For the finance part we observe that the owner invests in the company before any external investors are involved. After that the government subsidies follow. Interesting here is the fact that no loans are acquired.

Interesting to see is that product development starts directly from the moment the idea was born to start a venture. Also peculiar for the radical innovative ventures is the fact that sustainable profits are attained long after the end of product development.



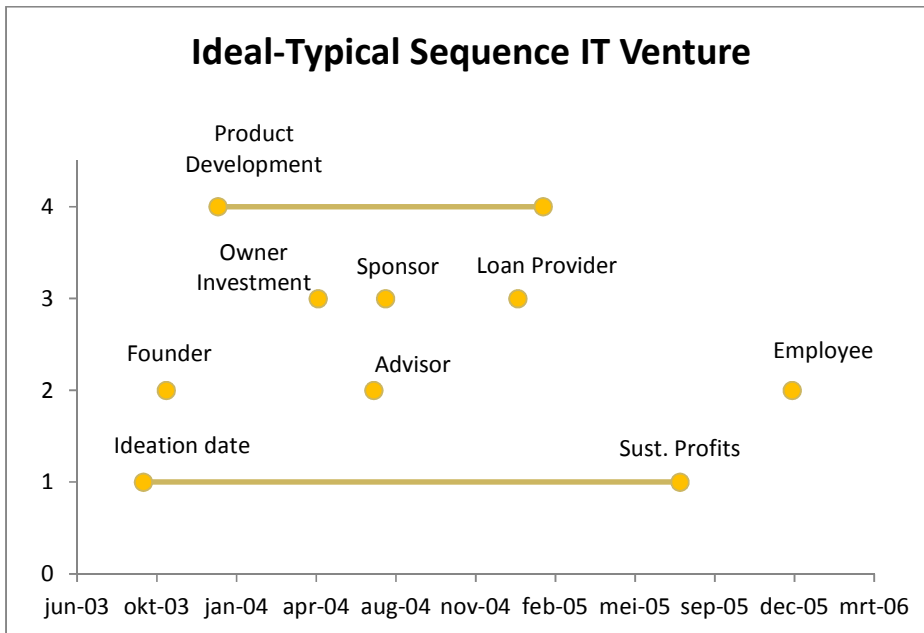
### ET Industry

The ideal-typical sequence for ET-ventures reveals that in general the founder and advisor are involved nearly simultaneously. Regarding finance it is interesting to observe the fact that loan providers are involved earlier than the owners, which are followed by subsidies. The product development stage starts relatively fast after the idea for the new venture was born. Interesting to note is that sustainable profits are reached before the product development stage has ended, revealing the limitations of the averages. The few cases with long product development stages and early profits skew the graph; however it does indicate that the product development mostly takes place after the moment of making profits.



#### IT Industry

The ideal-typical sequence for the IT ventures differs largely from the ET ventures. For instance the advisors are hired much later in the process of venture creation and IT ventures employ personnel during the last stages of venture creation. Further we see that the sequence of investing capital in the venture differs. The owners are the first to invest in the venture followed by sponsors and only in the last stages loan providers are attracted. The product development stage does not start simultaneously with the idea for starting a new venture and the stage occupies most of the venture creation phase. Product development does end before sustainable profits are attained.



## 5 DISCUSSION

### 5.1 IMPLICATIONS AND CONTRIBUTIONS

This research was based on the assumption that different innovative strategies make up for different venture creation processes. The underlying premise was that the activities as well as the sequence of activities differed for the different innovative strategies. Table 17 summarizes the results.

Table 17: Summary of results

Hypothesis	Result
H1a: The more innovative the venture strategy, the longer the venture creation process.	Not supported
H1b: The more innovative the venture strategy, the longer the period of ideation before registration of the new venture.	Supported
H1c: The more innovative the venture strategy, the longer the period of maturation until the moment of sustainable profits.	Supported
H2a: The more innovative the venture strategy, the more advisors are involved during the venture creation process.	Supported
H2b: The more innovative the venture strategy, the more founders are involved during the venture creation process.	Supported
H2c: The more innovative the venture strategy, the more employees are involved during the venture creation process.	Supported
H3a: New ventures use personal investments before turning to external financiers.	Supported
H3b: The more innovative the venture strategy, the more often a subsidy is required.	Supported
H3c: The more innovative the venture strategy, the less often loan providers are required.	Partially supported
H3d: The more innovative the venture strategy, the earlier a form of capital is needed during the venture creation process.	Supported
H4: The more innovative the venture strategy, the longer the product development stage.	Supported

#### Venture creation length

We found support for all, except one of, the proposed hypotheses. Therefore the results clearly support the overarching hypothesis that venture creation processes differ between ventures with innovative and non-innovative strategies. The first hypotheses provide evidence that the innovative type of ventures has a longer period of creating the venture, however the statistical significance for the *overall* length was not conclusive. We argued these hypotheses with the premises that innovation involves complexity (Samuelsson & Davidsson, 2008) and an innovative ventures lacks legitimacy (Delmar & Shane, 2004). The findings of this research are similar to these premises. The radically innovative ventures encountered complexities during the product development stage (H4) and subsequently the venture creation process takes longer. These empirical findings have been confirmed from other organizational disciplines, however this research confirms the complexities for radical innovative ventures from a process-oriented perspective. From this perspective only Samuelsson (2008) has provided empirical evidence for the fact that complexities make the venture creation stage longer.

The problem of legitimation is confirmed by the fact that non-innovative ventures more often argued that they started the process with having some clients. For the innovative ventures this was opposite, they more often started from a technological point of view without having clear-cut customers in mind. Another point put forward by the incremental and radically innovative ventures was the fact that the higher the innovativeness the more obstacles they had with legislation. The obstacles were the lack of knowledge with government and for the radical innovative ventures the knowledge and resources for developing the idea were harder to obtain.

This exemplifies that a higher level of innovativeness also raises the lack of legitimacy for the reasons provided by Delmar & Shane (2004). For policymakers we find that innovative ventures have a problem with legitimating their venture especially on the knowledge side. A lack of knowledge with government makes the venture creation process unnecessary long. The problem of legitimating the venture towards government thereby increases the rate of failure for innovative ventures, hampering the effect of the stimulation programs for innovative ventures. Policymakers stimulate the start of an innovative venture, but do not seem to stimulate the venture creation process of innovative ventures. The process towards creating a profitable venture is an even more important outcome. The implications of this research are to lower the barriers for innovative ventures to come into a phase of sustainable profits by making exceptions for innovative ventures in the legislation meant for non-innovative ventures. This could lower the time to obtain permits and let innovative ventures come into a phase of sustainable profits earlier, thereby increasing the rate of survival.

### **People**

In this study we focused on the involvement of different types of people in the venture i.e. founders, advisors and employees. The results reveal that each class of people is involved more intensively as the measure of innovativeness increases. This hits upon the notion of Delmar & Shane (2004) that the chain of actions performed by starting entrepreneurs is aimed at creating legitimacy for venture survival. The results emphasize this notion by the fact that more innovative ventures involve *more* people *earlier* during the process. There is thus a greater emphasis for ventures to create legitimacy earlier in the venture creation process. Hereby we confirm the combination of findings by Cooper (1994) and Aldrich (1987) that a higher level of innovation requires a greater breadth and depth of expertise. This extends the notion of Delmar & Shane (2004), which does not specifically address the difference of legitimating activities between innovative and non-innovative new ventures. The founders of innovative ventures have put more efforts on creating social ties and networks and still the venture creation process takes longer. They hire more advisors and employees during the process, which was in all cases for obtaining specific knowledge not possessed by the founder(s). These results suggest that innovative new ventures require more (human) resources to legitimate their venture. Thus from another angle - more people involved during the early process - we again identify the problem of legitimacy for innovative ventures.

We did not systematically obtain information about the founders' previous experience and education, however we during most conversation this information was revealed. Interesting to note is the fact that all entrepreneurs of radical innovative ventures have had a high degree of education. Although is not the aim of this research, this was a difference we identified between innovative and non-innovative ventures. This finding does align with findings of entrepreneurial trait research (Gartner, 1990).

### **Finance**

The hypotheses regarding the finance of new ventures are all supported, although partial support for hypothesis about loan providers. This hypothesis is subjected to an industry difference, for the wind-turbines and biomass plants involving a loan provider is a normality. This is linked to the subsidy schemes provided for these 'green' energy projects, without this scheme these ventures would not have obtained finance. The results support the theory that internal financing is favored above external financing, thereby supporting the pecking order theory (Myers, 2001). The empirical basis for the pecking order theory was only aimed at matured firms, thereby this study suggests that the application of this theory could also be extended to the venture creation process.

Our results show that subsidies are more attractive for innovative new ventures, supporting the accompanying hypothesis. This hypothesis goes against the pecking order theory, since subsidies are external finance. However, we argued that for innovative new ventures the information asymmetry was higher and therefore these ventures had to turn to government subsidies. This was not supported by theory, therefore we propose that the relationship between higher information asymmetries and government subsidies should be further



investigated. It could be that subsidies aim at entrepreneurial domains with higher information asymmetries and therefore subsidies are used more in these domains; or it could be the other way around. A clear view on the way the causal direction of these variables would be valuable for policymakers to be able to specify the subsidy schemes for the domains with high needs for funding.

The radically innovative new ventures rely very much on government subsidies during the venture creation stage in contrast with their non-innovative counterparts. Policymakers should take this notion into account for supporting non-innovative new ventures; stimulation of non-innovative ventures should not aim at providing financial incentives, with an exception for the ET industry. It should be noted that many respondents complained about the inconsistency of subsidy schemes in the Netherlands, which withholds prospective entrepreneurs in the ET industry from successfully creating a new venture. Constant changes in subsidy schemes have lengthened the venture creation process immensely for some venture, so much that the founders had to consider dissolving the venture. Policy-makers should adapt their outlook to the industry in which they aim to provide subsidies. The ET industry for example has long periods of permit applications making the product development stage multiple years, while the IT industry mostly has product development stages of several months (software developers). We advise the policymakers to take industry characteristics into account when aiming for a successful policy.

### **Venture creation sequences**

The *sequences of steps* taken do not differ for innovative and non-innovative ventures. However, the preceding hypothesis does give reason to believe that innovative ventures do things differently than their non-innovative counterparts. Innovative ventures take different steps already during the process of venture creation, revealing the strategic imprint (Warren Boeker, 1988) and confirming the notion that strategy influences the structure of an organization (Rumelt, 1986). The insights of the venture creation sequences between different innovative strategies are important for the alignment of current problems and possible solutions. Gustafsson (2004) argued that this type of knowledge could be informative for prospective entrepreneurs in their decisions making. The process-oriented perspective suggests that giving input for diverse 'recipes' of different types of innovative strategies could lead to more successful venturing processes (Samuelsson & Davidsson, 2008). The results of this study give inputs for creating different 'recipes', which can be further studies among different industries. Including a greater diversity of industries in the sample is important since we found that the industry does have influence on the composition of the venture creation sequence.

## **5.2 LIMITATIONS**

It is critical to recognize several limits of this research. Although we have argued that a strategy of innovativeness is likely not influenced by the start-up steps, still the cross-sectional research design makes it difficult to be completely sure about the direction of the causal relationship. This holds especially for the inferences about the industries in which we have not controlled for other variables.

In this research we have the assumption that the strategic approach of the new ventures are not adapted during the creation process, presuming that the ventures keep their initial strategic approach. The organizational literature has varying opinions about the fact that a strategy is either adaptive or inertial (Boeker, 1989). The adaptive perspective suggests that a venture would change its strategy upon the changing conditions. However, Boeker (1989) argued that the strategic approach during the founding stage is dominant. Adopting a specific strategy requires investments in competencies and material goods making a venture path dependent towards that strategy. The initial strategy "*can take on the character of an independent, autonomous goal*" (Boeker, 1989, p.493), thereby making the initial strategy inertial.

The process-oriented literature has been very focused on the measurement of a multitude of venture creation activities (Gartner, et al., 2004) and recording the time of occurrence during the venture creation process.

However, the diverse set of activities (see table 1 of this study) reveals that there is little agreement among researchers about the exact set of activities important for measuring venture creation processes (Frédéric Delmar & Shane, 2004). On top of that the theoretical classification of the measured activities is somewhat spurious in some cases. An example from research based on the PSED database provided by Gatewood et al. (1995) reveals that *“ventures that reached an operational stage devoted 18 times more hours to certain types of activities (collectively called “setting-up operations”) than did other start-ups”*.

The methodology within the process-oriented literature has another issue to deal with regarding venture creation processes. The wide range of venture creation lengths between 1 month and 10 years (Reynolds & Miller, 1992) is a striking feature of the inconsistencies of research on these creation processes. The first activity and last activity in the creation process define the temporal boundaries of the venture creation stage. The diversity of indicators for the start- and end of new venture makes the findings not comparable since it could take years before a venture reaches the ‘end indicator’, while in other studies the end of the creation process would have been reached (Delmar & Shane, 2002). Broad agreement must be reached by process-oriented researchers about the boundary indicators to make research comparable and inductive.

The recollection of data relied mostly on the memories of the respondents, therefore we have the idea that the memory of the respondents play a role in the validity of the data. In one case a respondent seemed quite confident about an application date, however during the interview he recollected paperwork stating another date. Showing that the confidence of a respondent does not necessarily mean that it is the truth. These measurements could also be improved by triangulation of data collection i.e. interviewing multiple persons involved with the founding of a new venture, making the measurements more reliable. In this study we had some control questions to check for consistency in the answers of the respondents. The data about the scale of innovativeness contains a level of interpretativeness by the respondents, because innovation is an intangible variable. We performed inter-observer consistency checks to reduce this.

The results are analyzed on the basis of 24 cases, not allowing for parametric statistical testing while the data was not normally distributed. This led us to use non-parametric statistical analysis, which has lower explanatory power. The used tests only indicate that we found a significant difference, but no correlative measure about the difference can be provided. We could have chosen to do a different sampling strategy and obtain a higher amount- and greater diversity of respondents. However, according to Davidson (2005) *“there is no fully satisfactory solution to the challenge of obtaining a representative sample of [...] start-up processes (p.9)*. The time consuming part of data collection in this research has provided us with much qualitative information which has explanatory power as well.

There are many different ways of starting a firm, which also includes not registering a firm. For this research we just made the decision that firm needs to be registered in order to classify as an entity which is doing business. Especially in the Netherlands venture is required to qualify for entrepreneurial tax exemptions, subsidy schemes and other formalities focused on business transactions. For the Netherlands we could therefore use the database of legal venture subscriptions to obtain the cases, however the legal registration also makes for more commitment of the founder. This research as well as other research (Samuelsson, 2001) on new ventures has shown that a large part of the venture creation process happens before legal registration. Therefore we could have excluded some of the ventures.

## 6 CONCLUSION

This thesis started with the notion that the government attempts to stimulate venture creation in order to spur economic growth since new ventures bring innovations to the market. The economic literature shares the opinion that entrepreneurship positively impacts economic growth and this especially holds for innovative entrepreneurs (Carree & Thurik, 2003). In this research we attempted to unveil that innovative new ventures take a different route during the start-up process, thereby providing insights for policymakers on the different venture creation processes of innovative new ventures.

We found that venture creation stages for innovative ventures differ from non-innovative ventures, thereby providing a general answer to the research question. More specifically; we did not find evidence for significant differences between the overall lengths of non-innovative and innovative ventures, however these ventures differ in the period towards registration and maturation (hypotheses 1b & 1c). Parallel to that, the product development stage also requires more time for these venture, confirming hypothesis 4.

If we look at the perspective of employment we see that hypothesis 2a, 2b and 2c can also be confirmed. Thereby revealing that the a (more) innovative venture employs more people, either through hiring (advisors) or providing direct employment during the venture creation process. The radically innovative ventures are job creators, which is beneficial from an economical perspective. Also the level of innovativeness correlates with the number of founders involved during the venture creation process i.e. a higher level of innovativeness requires more founders.

Considering the stimulation attempt of the government we can conclude that the measures to spur innovative entrepreneurship are in place, confirming hypothesis 3b. Innovative ventures require more subsidies, but thereby also acquire more subsidies. However, subsidies are being preceded by personal investments of the owners. We confirming hypothesis 3a that the first investment is a personal investment instead of an external investment. The non-innovative ventures tend to use loans more often, however we cannot confirm this hypothesis 3c with confidence since the industry differences outweigh the separation between the different measures of innovativeness. We did find evidence to confirm hypothesis 3d; innovative ventures require funds earlier during the process of venture creation.

In general we see that the founders of new ventures seem to legitimate their venture at the moment of registration. From that moment capital is invested, material is being bought and more directed efforts are being made to create rent. The new venture is materialized from that moment. The legitimation efforts are directed differently for innovative ventures compared to non-innovative ventures.

## REFERENCES

- Acs, Z. J. (1992). Small business economics: A global perspective. *Challenge*. Retrieved from <http://www.jstor.org/stable/10.2307/40721390>
- Acs, Z. J., & Szerb, L. (2010). The Global Entrepreneurship and Development Index for the Netherlands: The analysis of the entrepreneurial position of the Netherlands. Retrieved from [http://66.147.244.232/~lifeats1/cepp/files/pdfs/Acs\\_en\\_Szerb\\_GEINDEX\\_Report\\_the\\_Netherlands%5B1%5D.pdf](http://66.147.244.232/~lifeats1/cepp/files/pdfs/Acs_en_Szerb_GEINDEX_Report_the_Netherlands%5B1%5D.pdf)
- Aldrich, H., Rosen, B., & Woodward, W. (1987). The impact of social networks on business foundings and profit: a longitudinal study. *Frontiers of Entrepreneurship Research*, 154 – 168. Retrieved from <http://www.citeulike.org/user/madhuragrl/article/6929479>
- Arrow, K. (1974). The limits of organization. Retrieved from [http://books.google.nl/books/about/The\\_limits\\_of\\_organization.html?id=55eDQgAACAAJ&pgis=1](http://books.google.nl/books/about/The_limits_of_organization.html?id=55eDQgAACAAJ&pgis=1)
- AWT. (2012). *Brief "Ambitieuze ondernemer" aan de Minister van Economische Zaken, Landbouw en Innovatie*. Retrieved from [http://www.awt.nl/upload/documents/publicaties/tekst/ambitieuze\\_ondernemers.pdf](http://www.awt.nl/upload/documents/publicaties/tekst/ambitieuze_ondernemers.pdf)
- Bhave, M. P. (1994a). A process model of entrepreneurial venture creation. *Journal of Business Venturing*, 9(3), 223–242. doi:10.1016/0883-9026(94)90031-0
- Bhave, M. P. (1994b). A process model of entrepreneurial venture creation. *Journal of Business Venturing*, 9(3), 223–242. doi:10.1016/0883-9026(94)90031-0
- Birley, S. (1985). The role of networks in the entrepreneurial process. *Journal of Business Venturing*, 1(1), 107–117. doi:10.1016/0883-9026(85)90010-2
- Boeker, W. (1989). Strategic change: The effects of founding and history. *Academy of Management Journal*. Retrieved from <http://www.jstor.org/stable/256432>
- Boeker, Warren. (1988). Organizational Origins: Entrepreneurial and Environmental Imprinting of the Time of Founding. Retrieved from <http://papers.ssrn.com/abstract=1497762>
- Bryman, A. (2006). Integrating quantitative and qualitative research: how is it done? *Qualitative Research*, 6(1), 97–113. doi:10.1177/1468794106058877
- Bryman, Alan. (2012). *Social Research Methods*. Oxford: Oxford University Press.
- Carree, M. A., & Thurik, A. R. (2003). The impact of entrepreneurship on economic growth. Retrieved from <http://ideas.repec.org/p/ner/maastr/urnnbnlnui27-3884.html>
- Carter, N., Gartner, W., & Reynolds, P. (1996). Exploring start-up event sequences. *Journal of business venturing*, 11(3), 151–166. doi:10.1016/0883-9026(95)00129-8
- Carter, N., & Stearns, T. (1994). New venture strategies: theory development with an empirical base. *Strategic Management ...*, 75(February 1993), 21–41. Retrieved from <http://onlinelibrary.wiley.com/doi/10.1002/smj.4250150103/abstract>
- Cooper, A. C., Gimeno-Gascon, F. J., & Woo, C. Y. (1994). Initial human and financial capital as predictors of new venture performance. *Journal of Business Venturing*, 9(5), 371–395. doi:10.1016/0883-9026(94)90013-2

- Davidsson, P. (2005). Method Issues in the Study of Venture Start-up Processes. *Jönköping International Business School (JIBS), Swede*. Retrieved December 5, 2012, from [http://eprints.qut.edu.au/2074/1/Davidsson\\_for\\_Fayolle-Elgar\\_corrected.pdf](http://eprints.qut.edu.au/2074/1/Davidsson_for_Fayolle-Elgar_corrected.pdf)
- Davidsson, P., & Gordon, S. R. (2011). Panel studies of new venture creation: a methods-focused review and suggestions for future research. *Small Business Economics*, 39(4), 853–876. doi:10.1007/s11187-011-9325-8
- Delmar, F., & Shane, S. (2002). What firm founders do: a longitudinal study of the start-up process. *University of Illinois at Urbana-Champaign's ...*. Retrieved from [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1497834](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1497834)
- Delmar, Frédéric, & Shane, S. (2004). Legitimizing first: organizing activities and the survival of new ventures. *Journal of Business Venturing*, 19(3), 385–410. doi:10.1016/S0883-9026(03)00037-5
- Eurostat. (2011). *Science and Technology Databases: Research and Development: Government Budget Appropriations or Outlays on R&D by Socio-Economic Objectives (available online)*.
- Gartner, W. B. (1988). Who Is an Entrepreneur? Is the Wrong Question.
- Gartner, W. B. (1990). What are we talking about when we talk about entrepreneurship? *Journal of Business Venturing*, 5(1), 15–28. doi:10.1016/0883-9026(90)90023-M
- Gartner, W., Mitchell, T., & Vesper, K. (1989). A taxonomy of new business ventures. *Journal of Business Venturing*, 4(3), 169–186. doi:10.1016/0883-9026(89)90019-0
- Gartner, W., Shaver, K., Carter, N., & Reynolds, P. (2004). *Handbook of entrepreneurial dynamics: The process of business creation*. SAGE Publications. Retrieved from [http://books.google.com/books?hl=en&lr=&id=FaD116qHSI8C&oi=fnd&pg=PR9&dq=Handbook+of+Entrepreneurial+Dynamics:+The+Process+of+Business+Creation&ots=WI\\_VTm9grl&sig=PU3Aw2WNEfmwETObPCofnSLZjkb](http://books.google.com/books?hl=en&lr=&id=FaD116qHSI8C&oi=fnd&pg=PR9&dq=Handbook+of+Entrepreneurial+Dynamics:+The+Process+of+Business+Creation&ots=WI_VTm9grl&sig=PU3Aw2WNEfmwETObPCofnSLZjkb)
- Gatewood, E. J., Shaver, K. G., & Gartner, W. B. (1995). A longitudinal study of cognitive factors influencing start-up behaviors and success at venture creation. *Journal of Business Venturing*, 10(5), 371–391. doi:10.1016/0883-9026(95)00035-7
- Geroski, P. A. (1995). Industrial Organization What do we know about entry?, 13, 421–440.
- Grimaldi, R., & Grandi, A. (2005). Business incubators and new venture creation: an assessment of incubating models. *Technovation*, 25(2), 111–121. doi:10.1016/S0166-4972(03)00076-2
- Groves, R., Biemer, P., & Lyberg, L. (2001). *Telephone survey methodology* (pp. 191–211). Wiley. Retrieved from <http://books.google.com/books?hl=en&lr=&id=OOQaiWXpQBEC&oi=fnd&pg=PA3&dq=Telephone+Survey+Methodology&ots=yxnI5tLFPK&sig=WGmLV8qs7dUbdR07QUvnuBSXAy8>
- Gustafsson, V. (2004). Entrepreneurial Decision-making: Individuals, Tasks and Cognitions. Internationella Handelshögskolan. Retrieved from <http://www.diva-portal.org/smash/record.jsf?pid=diva2:3878>
- Kamerbrief over voortgang bedrijvenbeleid in uitvoering | Kamerstuk | Rijksoverheid.nl. (n.d.). Retrieved June 24, 2013, from <http://www.rijksoverheid.nl/onderwerpen/ondernemersklimaat-en-innovatie/documenten-en-publicaties/kamerstukken/2012/09/03/kamerbrief-over-voortgang-bedrijvenbeleid-in-uitvoering.html>
- Katz, J., & Gartner, W. (1988). Properties of emerging organizations. *Academy of management review*, 13(February 1993), 429–441. Retrieved from <http://www.jstor.org/stable/10.2307/258090>

- Keuschnigg, C., & Nielsen, S. B. (2003). Public Policy for Start-up Entrepreneurship with Venture Capital and Bank Finance. Retrieved from <http://papers.ssrn.com/abstract=382924>
- King, R. G., & Levine, R. (1993). Finance, entrepreneurship and growth. *Journal of Monetary Economics*, 32(3), 513–542. doi:10.1016/0304-3932(93)90028-E
- Kirzner, I. (1978). *Competition and entrepreneurship* (p. 246). University of Chicago Press. Retrieved from <http://books.google.com/books?id=E9DA745zhIC&pgis=1>
- Li, H., & Atuahene-Gima, K. (2001). PRODUCT INNOVATION STRATEGY AND THE PERFORMANCE OF NEW TECHNOLOGY VENTURES IN CHINA. *Academy of Management Journal*. Retrieved from [http://sfx.library.uu.nl/utrecht?sid=Elsevier:Scopus&\\_\\_service\\_type=getFullTxt&issn=00014273&isbn=&volume=44&issue=6&spage=1123&epage=1134&pages=1123-1134&artnum=&date=2001&id=doi:&title=Academy+of+Management+Journal&atitle=Product+innovation+strategy+and+the+performance+of+new+technology+ventures+in+China&aufirst=H.&aulast=Li](http://sfx.library.uu.nl/utrecht?sid=Elsevier:Scopus&__service_type=getFullTxt&issn=00014273&isbn=&volume=44&issue=6&spage=1123&epage=1134&pages=1123-1134&artnum=&date=2001&id=doi:&title=Academy+of+Management+Journal&atitle=Product+innovation+strategy+and+the+performance+of+new+technology+ventures+in+China&aufirst=H.&aulast=Li)
- Liao, J. (Jon), & Welsch, H. (2008). Patterns of venture gestation process: Exploring the differences between tech and non-tech nascent entrepreneurs. *The Journal of High Technology Management Research*, 19(2), 103–113. doi:10.1016/j.hitech.2008.10.003
- Low, M., & MacMillan, I. (1988). Entrepreneurship: Past research and future challenges. *Journal of management*. Retrieved from <http://www.olim.org/wiki/uploads/Articles/LowMacMillan1988PastResearch.pdf>
- McCann, J. E. (1991). Patterns of growth, competitive technology, and financial strategies in young ventures. *Journal of Business Venturing*, 6(3), 189–208. doi:10.1016/0883-9026(91)90009-3
- Myers, S. C. (2001). Capital Structure. Retrieved June 20, 2013, from [http://www.jstor.org/sici?sici=0895-3309\(200121\)15:2<81:CS>2.0.CO;2-D](http://www.jstor.org/sici?sici=0895-3309(200121)15:2<81:CS>2.0.CO;2-D)
- Reynolds, P., & Miller, B. (1992). New firm gestation: Conception, birth, and implications for research. *Journal of Business Venturing*, 7(5), 405–417. doi:10.1016/0883-9026(92)90016-K
- Rumelt, R. P. (1986). *Strategy, structure, and economic performance*. Retrieved from [http://books.google.nl/books/about/Strategy\\_structure\\_and\\_economic\\_performa.html?id=o7DuAAAAMAAJ&pgis=1](http://books.google.nl/books/about/Strategy_structure_and_economic_performa.html?id=o7DuAAAAMAAJ&pgis=1)
- Samuelsson, M. (2001). Modeling the nascent venture opportunity exploitation process across time. *University of Illinois at Urbana-Champaign's ...*. Retrieved from <http://fusionmx.babson.edu/entrep/fer/babson2001/I/IF/IF.htm>
- Samuelsson, M., & Davidsson, P. (2008). Does venture opportunity variation matter? Investigating systematic process differences between innovative and imitative new ventures. *Small Business Economics*, 33(2), 229–255. doi:10.1007/s11187-007-9093-7
- Shane, S., & Cable, D. (2002). Network ties, reputation, and the financing of new ventures. *Management Science*. Retrieved from <http://www.scopus.com/record/display.url?eid=2-s2.0-0036493063&origin=resultslist&sort=cp-f&src=s&st1=finance+new+ventures&sid=DC7ED72A03CE6A57630F1574244928A6.53bsOu7mi7A1NSY7fPJf1g%3a330&sot=q&sdt=b&sl=40&s=TITLE-ABS-KEY-AUTH%28finance+new+ventures%29&relpos=0&relpos=0&searchTerm=TITLE-ABS-KEY-AUTH%28finance+new+ventures%29>
- Shane, Scott, & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of management review*, 25(1), 217–226. Retrieved from <http://www.jstor.org/stable/10.2307/259271>

- Simon, J., & Burstein, P. (1985). Basic research methods in social science. Retrieved from <http://www.lavoisier.fr/livre/notice.asp?ouvrage=1057344>
- Stinchcombe, A. L. (1965). Social structure and organizations. In J. G. March (Ed.), *Handbook of organizations* (pp. 93–153). Chicago: Rand McNally. Retrieved from <http://www.emeraldinsight.com/journals.htm?articleid=1781251&show=abstract>
- Van de Ven, A.H., Angle, H. L., & Poole, M. S. (1989). *Research on the Management of Innovation*. New York: Harper & Row.
- Van de Ven, Andrew H. (1980). Early planning, implementation and performance of new organizations. (In J. R. Kimberly & R. Miles (Eds.), Ed.) *The organizational life cycle*, 83–134. Retrieved from <http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Early+planning,+implementation+and+performance+of+new+organizations#0>
- Vesper, K. (1980). New venture strategies. *University of Illinois at Urbana-Champaign's Academy ....* Retrieved from [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1496217&](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1496217&)
- Weick, K. E. (1979). *The social psychology of organizing*. (Addison-Wesley, Ed.) *Administrative Science Quarterly* (Vol. 2, p. 294). Addison-Wesley. doi:10.2307/2392295

## APPENDIX

### 6.1 APPENDIX I

Tabel 1x: Summary of results

Measure of innovativeness / Identifier	Industry type	Ideation phase length (months)	Maturation phase length (months)	Venture creation length (months)	Employees (y/n)	Subsidy granted (y/n)	Loan granted
<b>Non-innovative</b>							
1) Ger0007	IT	5	3	8	N	N	N
2) NL.0002	IT	19	3	22	N	N	N
3) NL.0004	IT	8	5	13	N	N	N
4) NL.0029	IT	5	8	13	Y	N	N
5) NL.0030	ET	24	97	121	N	Y	N
6) NL.0049	ET	38	23	61	N	Y	Y
7) NL.0050	ET	10	9	19	N	Y	Y
8) NL.0057	ET	34	57	91	N	Y	Y
9) NL.0071	IT	3	17	20	N	N	Y
<b>Incremental innovation</b>							
1) NL.0009	IT	14	3	17	N	N	N
2) NL.0019	IT	1	3	4	N	N	N
3) NL.0023	IT	5	3	8	Y	N	N
4) NL.0052	ET	22	7	29	N	N	N
5) NL.0060 (F)	ET	0	0	23	N	N	N
6) NL.0066 (F)	ET	15	58	73	N	Y	N
7) NL.0102	IT	29	4	33	Y	Y	N
<b>Radical innovation</b>							
1) NL.0026	IT	2	3	5	N	N	N
2) NL.0051	IT	25	9	34	N	Y	N
3) NL.0053	IT	6	23	29	Y	Y	N
4) NL.0075	IT	5	32	37	N	Y	N
5) NL.0083 (NP)	IT	14	93	107	Y	Y	N
6) NL.0085	ET	25	8	33	Y	Y	N
7) NL.0098	IT	5	3	8	Y	N	N
8) NL.0104	IT	12	62	74	Y	Y	Y



## 6.2 APPENDIX 2

### **Robustness check with outlier value (NL.0030).**

The minor difference between the different innovative ventures is supported by the result of the Kruskal-Wallis test, showing a p-value of 0,49. Thereby we did not find a statistically significant difference. The Mann-Whitney test used for testing the difference between the industries provided a p-value of 0,09, leading us to conclude that these show statistically significant difference. For both the test the cutoff p-value of 0,10 is used, because of the small n.