

The temporal locations of sub processes of the entrepreneurial process

MSc in Business Administration

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June 12th 2015

Abstract

Recent research has shown that the entrepreneurial process is complex and without a consistent pattern, using a framework which is based on entrepreneurial activities. The goal of this research is to use a framework based on sub processes, to indicate the presence of a common structure in the entrepreneurial process. By coding the weekly diaries of 4 entrepreneurs during their time in a business incubator, time lines are constructed to indicate the temporal locations of the sub processes. The coded segments are analysed and compared to the eventual configurations of the businesses. Irrelevant coded segments are deleted from the time lines, resulting in a patterned process. The results show that there are consistencies in the entrepreneurial process, where certain sub processes follow after each other sequentially and other sub processes run parallel to each other. This indicates that the entrepreneurial process shows a pattern.

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1 Introduction

Entrepreneurship is recognized as fundamentally critical for global economic growth (Harris, 2011). Small or medium-sized enterprises (SME) represent 99% of business in the European Union (EU, as seen on June 12th 2015). They are therefore crucial for the economic growth, innovation, employment and social integration. Although there are many articles on the subject of

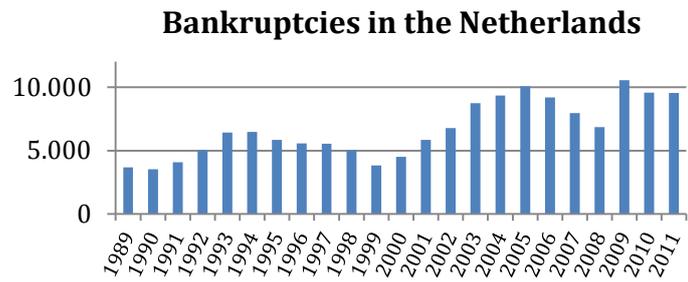


Figure 1: Bankruptcies in the Netherlands

entrepreneurship, the number of bankruptcies of SMEs remain high, see figure 1 (CBS, as seen on October 15th 2014). The literature of entrepreneurship is divided. Theoretical concepts are not robust enough to be accepted by all researchers involved. There is a gap between theorists and practitioners. From the practitioner's perspective, the idiosyncratic nature of entrepreneurship allows for many overarching concepts (see for example Katz & Gartner, 1988; Grande, 2011). For the theorists, theoretical concepts are tested and proved, however the actual implications for individual entrepreneurs remain unclear (see for example Teece, 2007; Tornikoski & Newbert, 2007; Stuetzer et. al, 2012).

Entrepreneurship as a process is a recent field of inquiry, that is slowly gaining momentum. Understanding the process of entrepreneurship is important because of several reasons. The first reason is that a better understanding of the process can increase the number of new entrants into the economy. Although the numbers of bankruptcies are already high in the current economy, there are no measurable indications of how many entrepreneurs fail to start up their businesses before an official registration occurs. By understanding the process, in particular the transitions and states of development, institutions and governments may intervene in the entrepreneurial process to benefit the entrepreneur in question, which in turn improves the economy. The second reason is that the field of entrepreneurship is currently undistinguishable from creativity research at the beginning of the process and strategy at the end of the process (McMullen & Dimov, 2013). A process approach is perhaps necessary to turn entrepreneurship into a distinguished domain of research.

Research that approaches entrepreneurship in a process manner, with a focus on long-term outcomes is practically unpopulated (McMullen & Dimov, 2013). Contrary to short-term outcomes and abstract representations of variables, process research with long-term outcomes which displays the events that entrepreneurs perform to establish a business are unpopular among scholars. Why haven't researchers looked into the entire entrepreneurial process in a sequential manner? The first reason is a lack of qualitative longitudinal data. Gathering data is labour-intensive and secondary data is hard to come by. Current studies are mostly based on quantitative data, which do not display the idiosyncratic nature of entrepreneurship. However, the advantages of qualitative studies are becoming more clear for researchers. The second reason is the time it consumes for researchers. Academics are competitive and short-term results are more important than focusing on a single struggling entrepreneur that may or may not succeed in creating a new venture through the course of sometimes years. As McMullen & Dimov (2013) indicate, as time is already scarce for academic achievements, another problem is

the generalizability of certain studies. Samples are often too small to make general conclusions. Theoretical models of the entrepreneurial process are abundant, however the empirical evidence to support these models are absent (McMullen & Dimov, 2013). This raises the question whether the models that are taught in classrooms are representative for the actual entrepreneurial process.

Process research, in particular the sequence of activities performed by entrepreneurs, has relied on gestation activities to indicate that the entrepreneurial process is complex and shows no common pattern (Liao & Welsh, 2008). Gestation activities are commonly found activities that entrepreneurs perform in establishing a new venture (Katz & Gartner, 1988). However, there are several reasons why gestation activities may not be suitable for process research. First of all, the dataset from the Panel study of entrepreneurial dynamics (PSED), on which the research of Liao & Welsh (2008) is based on, contains 56% of nascent entrepreneurs, that did not manage to make their first sales yet. Secondly, several activities of the gestation activities are less relevant for service industries, of which the dataset contains 39.5% (Reynolds, 2000). Third, The PSED dataset are in the form of questionnaires that are collected once a year, which results in a high risk for recall bias from the entrepreneurs. These three reasons, among others, make it questionable whether the findings of Liao & Welsh (2008) are generalizable for all entrepreneurial processes and whether gestation activities are suitable as a theory for process related research.

In order to close the gap between theory and practise, this research will empirically test the validity of an entrepreneurial process model. With a dataset, consisting of weekly diaries, from a university-related business incubator, Venture Lab Twente, this study will research the dataset with an operationalization of the entrepreneurial sub processes model of Shane (2003) to investigate common patterns in the entrepreneurial process. Shane & Venkataraman's (2000) process model has been the most agreed upon in the current entrepreneurial process model literature (Aldrich & Cliff, 2003), of which the entrepreneurial sub processes model is an elaboration (Shane, 2003). This qualitative research will conduct an evaluation on Shane's sub processes model (2003), by means of a multiple-case study. By using a time-series analysis with a chronological sequences design (Yin, 2014), this research will approach the lack of pattern in the entrepreneurial process, as found by Liao & Welsh (2008) through another perspective. The main source of data are in the form of weekly diaries of 4 successful entrepreneurs. The focus of this study are the temporal locations of the sub processes of the entrepreneurial process. In particular it will try to answer the following question:

- How are the sub processes located in time in the entrepreneurial process?

This research is divided in several sections in order to investigate the main research question. The theoretical background holds a description of the 7 sub processes as indicated by Shane (2003). Next, based on the knowledge gained in the theoretical background several propositions are suggested to investigate the research question. In the research methodology, the case selection, operationalization of the sub processes and analysis method are described. A description and analysis of the case studies follows after that and includes a cross-case analysis. The conclusions of this research are given in the section that follows. Finally, the implications and limitations are discussed in the final section.

2 Theoretical background

The entrepreneurial process can be divided into sub processes, which an entrepreneur takes in order to create a profit. Although the process model of Shane & Venkataraman (2000) (see figure 2) has been the most agreed upon in the process model literature (Aldrich & Cliff, 2003), a more elaborate process model has been developed by Shane (2003), which describes the different sub processes in the entrepreneurial process and are based on literature from economy, psychology and sociology. The sub processes are: The existence of an opportunity, discovery of opportunity, decision to exploit opportunity, resource acquisition, entrepreneurial strategy, organizing process and performance (Shane, 2003) (See figure 3). In the following section a definition of the different sub processes is given.

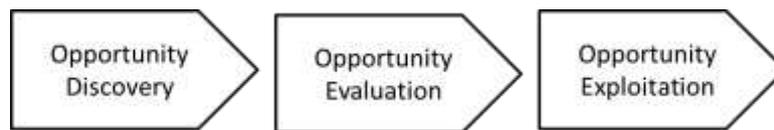


Figure 2: Process model of the entrepreneurial process (Adopted from Shane & Venkataraman, 2000)



Figure 3: Sub processes of the entrepreneurial process (Adopted from Shane, 2003)

2.1 Existence of opportunity

There are two perspectives on how opportunities come to be, namely that opportunities are discovered and that opportunities are created. Entrepreneurship is defined as creating new means-end frameworks in contrast to optimization efforts, which do not fall under the definition of entrepreneurship (Shane & Venkataraman, 2000). Entrepreneurial opportunities can take the form of “[...] new products or services, new ways of organizing, new raw materials, new markets and new production processes (Shane, 2003, p. 12). In order to define this new means-end framework, new information is necessary. The two perspectives have opposing opinions as to where this new information comes from. While the information for Kirznerian opportunities are created by the entrepreneur (Kirzner, 1973), Schumpeterian opportunities require new information, which is discovered by the entrepreneur (Schumpeter, 1934).

Schumpeterian opportunities have their sources in new technologies, political forces, regulations, macro-economic factors and social trends (Schumpeter, 1934). Changes in the different sources of Schumpeterian opportunities are the new information an entrepreneur uses to establish a new means-end framework. The reason why only the entrepreneur is able to detect and exploit it, is due to characteristics the individual entrepreneur has, that others do not.

Kirznerian opportunities have their sources in mistakes made by decision makers, which creates shortages and surpluses, that an entrepreneur can exploit (Kirzner, 1973). This implies that the opportunity already exist in the environment, but that only the entrepreneur sees a potential profit “[...] through the creative imagination and social skill of the entrepreneur” (Suddaby, Bruton & Steven, 2015, p. 3). Creating opportunities is signified by uncertainty and entrepreneurs will in some cases have to create their own markets, alongside the creation of a

product or service. In order to create these markets, entrepreneurs must be able to convince customers of the need for their product or service (Suddaby & Greenwood, 2005).

2.2 Discovery of opportunity

The discovery of an opportunity is related to the evaluation of a new means-end framework and whether the new framework is profitable for the entrepreneur. The discovery of a surplus value of the new means-end framework is important, since a loss incurred by a new means-end framework cannot be defined as an opportunity. Shane & Venkataraman (2000) pose that the nature of the opportunity and individual differences between entrepreneurs are the main variables in the discovery process to discover the potential value of the opportunity.

The nature of opportunities have an impact on the perception of value for the entrepreneur. The opportunity has a certain expected value that has to be offset to the cost of the opportunity. A new means-end framework involves the recombination of resources. If the costs of recombining the resources, combined with the costs of the resources are lower than the price an entrepreneur can sell them, an opportunity is present. Other dimensions that influence the perception of the potential value of an opportunity are summarised by Shane & Venkataraman (2000), which are a high expected demand, high industry profit margins, young technology life cycle, a not too high and not too low density of competitors, low cost of capital and whether population learning is available.

Individual differences that influence the perception of value of an opportunity are related to the perception and knowledge an entrepreneur has (Shane, 2003). Individual differences among entrepreneurs are related to alternative opportunities the entrepreneur is familiar with, the amount of capital the entrepreneur owns, strong social ties to resource providers, familiarity with an opportunity from previous work experience, and transferability of information from the prior experience (Shane & Venkataraman, 2000). Research found that “opportunity novelty, resource efficiency, and worst-case scenario influence opportunity evaluation” (Wood & Williams, 2014, p. 573), and that the worst-case scenario overrules the positive effects of the other criteria. As with Shane & Venkataraman (2000), Wood & Williams (2014) also found that the individual knowledge on the market and technology influences the worst-case scenario.

2.3 Decision to exploit opportunity

The decision to exploit an opportunity concerns the decision to invest time and effort in the opportunity and involves individual differences and psychological factors (Shane, 2003). Apart from being profitable, an entrepreneur must be committed to an opportunity in time and effort, in order to be able to exploit the opportunity eventually.

Individual differences have several influences on the decision to exploit an opportunity. These differences have been attributed to 5 factors: opportunity cost, education, career experience, age and social position (Shane, 2003). Opportunity cost are based on the argument that entrepreneurs can invest their time in different ways and will select the one with the highest potential (Shane & Venkataraman, 2000). Education and industry experience can influence the perception on opportunity cost, since entrepreneurship involves several skills and knowledge. By acquiring these skills, the return an entrepreneur potentially can receive from an opportunity will be higher (Shane, 2003). “Autonomy, purpose, enjoyment, flexibility, and financial incentives” (Harms et. al, 2014, p. 4) have been found to be motivators for ‘grey entrepreneurs’ to start their own business (Harms et. al, 2014). These are entrepreneurs that start their

business when their age is over fifty. Social position influences the decision process, because access to resources through social ties is higher and the ability to convince others of the value of an opportunity becomes easier (Shane, 2003).

Psychological differences have several influences on the decision to exploit an opportunity. These are motivation, core evaluation and cognition (Shane, 2003). Men are more likely to become self-employed and own their own businesses. However, the motivations of men are different than those of women. Men are more attracted to self-employment due to financial reasons, while women are more influenced by the opinions in their social circle (Allen & Curington, 2014). Core evaluation involves self-efficacy and locus of control (Shane, 2003). Self-efficacy is the management of emotions under difficult situations, in particular the regulation and utilization of emotions to influence others (Mortan et. al, 2014). Internal locus of control has been found to influence intention, motivation, satisfaction, and performance and is a shared characteristic among entrepreneurs (Schjoedt & Shaver, 2012). “[T]he decision to exploit an opportunity must be made under the time pressure, uncertainty and limited information, all of which hinder analytical decision-making” (Shane, 2003, p. 255). To compensate for this disability, the cognition of entrepreneurs show overconfidence when little information is available, as well as over-generalize the information and base decisions on intuition (Shane, 2003).

2.4 Resource acquisition

Resource acquisition can be accomplished by self-financing or investors (Shane, 2003). Since the exploitation of opportunities relies on the recombination of resources through an entity, financial resources are needed to acquire the necessary resources for recombination as well as for creating the entity itself that will perform the recombination. Capital provides a buffer that can be used in difficult situations (Carroll & Hannan, 2000). It also overcomes liquidity constraints to pursue opportunities and influences perceptions of external stakeholders (Shane, 2003)

Self-financing is a solution to overcome information asymmetry and uncertainty of the opportunity, which deters investors from investing (Shane, 2003). Self-financing is a preferred in the cases that show high levels of education, high net worth and high levels of industry experience (Gartner & Alexander, 2012). A way to elongate the capital from self-financing is by establishing a line of credit with a bank. Depending on the risk premium, which is determined by “firm size, line of credit size, ability to repay, the relationship between banker and entrepreneur, and the length of the relationship with the bank” (St-Pierre & Bahri, 2011 , p. 459), an entrepreneur can receive a line of credit that can boost the capital acquired by self-financing. However, many entrepreneurs do not have the ability to self-finance an opportunity. Also, in case the new entity will not profit, the entrepreneur will have to bear all of the loss (Shane, 2003). These reasons motivate entrepreneurs to seek out financial resources from investors.

Investors hold several risks when investing in an opportunity and have several ways to protect against them (Shane, 2003). The risks that investors encounter when making an investment decision are caused by information asymmetry and uncertainty. Information asymmetry can result in investors making decisions with less information, dealing with opportunistic behaviour of the entrepreneur, dealing with excessive risk behaviour of the entrepreneur and adverse selection (Shane, 2003). Uncertainty about an opportunity can result in the incapability to evaluate the opportunity, bargaining problems in the relationship, and false judgement of the

entrepreneur (Shane, 2003). As counter-measures investors can utilize contracts, specialize in an industry, remain involved with a new venture, and invest in implicit contracts in the form of social ties (Shane, 2003).

2.5 Entrepreneurial strategy

Entrepreneurial strategy is the strategy an entrepreneur develops and involves the protection of the opportunity from competitors and managing uncertainty and information asymmetry in market transactions (Shane, 2003). The entrepreneur can take on several strategies to protect the value of the means-end framework from other businesses and individuals. Also, dynamics in the market can cause information asymmetry, that can be overcome in several ways in order to stabilize demand and improve the accuracy of market information (Shane, 2003).

Protection of the opportunity can be accomplished by means of secrecy or introducing barriers to competitors (Shane, 2003). Secrecy involves the information that was discovered or created in the existence of opportunity sub process. The goal of secrecy is to withhold this information from others or to distort the causal relationship between the information and exploitation of it, so that if the information is available to others, they are not able to understand how to use it. Other ways of excluding others from using the information involve the setting up of barriers. These can be by means of “controlling the resources needed to exploit opportunities, establishing legal barriers to imitation, exploiting opportunities at a scale that deters imitation, establishing a reputation, and innovating to stay ahead of competition” (Shane, 2003, p. 218).

Managing uncertainty and information asymmetry can be done in several ways. Starting on a small scale, by means of acquisition, by using a focus strategy to avoid main stream competition, by keeping the organization flexible and adaptive, by forming alliances with established firms, and by using the established firm’s reputation (Shane, 2003). Other ways to overcome uncertainty and information asymmetry are based on legitimation and involve “imitating existing firm’s routines and competencies; by achieving collective agreements on standards and design; and by obtaining certification from reputable authorities” (Shane, 2003, p. 218).

2.6 Organizing process

The organizing process involves the organizing of an entity or market mechanism to exploit an opportunity (Shane, 2003). Although the exploitation by means of market mechanisms brings several advantages in the form of costs, speed, capabilities and information (Shane, 2003, p. 249), the focus of this research is the process of setting up an entity to exploit opportunities. The organizing process is the gathering and configuring of these resources, which are needed to create the entity that will perform the recombination of resources through the new means-end framework.

The organizing process of an entity involves activities such as obtaining equipment, setting up production processes, gathering employees and registering legal entities (Shane, 2003). Physical, human and organizational resources (Barney, 1991) must be organized. Resources can be divided into tangible assets and intangible assets and give a description of what a company needs in order to function. Tangible assets can be defined as “[...]the organization’s equipment and infrastructure, both physical (such as logistic centrality of the plant, access to plenty of water or to mines of raw materials) and technological (such as sophisticated mainframes or advanced machineries)” (Greco et. al, 2013, p.57). Intangible assets are more elaborate. These Intangible assets can be divided into relationships and knowledge. Relationships can be

subdivided into internal relationships and external relationships. Internal relationships are relationships within the company. External relationships can be further subdivided into customers, institutions, investors and partners & suppliers. Knowledge can be divided into tacit and explicit knowledge. Tacit knowledge can be subdivided into know-how and corporate culture. Explicit knowledge can be subdivided into intellectual property and process knowledge (Greco et. al, 2013).

2.7 Performance

Performance is the exploitation phase of an opportunity, where the entity starts the process of recombining resources according to the new means-end framework for a profit (Shane, 2003). The means-end framework can be expressed in several ways in the performance sub process. The implementation of new means-end framework can consist of new products or services, new ways of organizing, new raw materials, new markets and new production processes (Schumpeter, 1934).

Performance can be measured by “[...] survival, growth, profitability and experiencing initial public offering” (Shane, 2003, p. 5). Expectations are that only a small number of nascent entrepreneurs are able to establish a new venture. However, making it to the performance sub process is no guarantee for survival. 40 % of new ventures fail to survive the first year (Taylor, 1999) and 88 % of new ventures fail to survive the first 19 years after founding the new venture (Kirchhoff, 1994). Growth of a new venture can be measured on different scales, for example number of employees, annual profit or equity. Less than 10 % of organizations manage to grow on any dimension and less than 4 % achieve to have more than 100 employees (Duncan & Handler, 1994). Profit is what remains after the costs of recombination are deducted from revenues. Compared to people from their same age, only 8 % of self-employed women and 21 % of self-employed men earn more than the median income in any year (Schiller & Crewson, 1997). Achieving a public offering, which is the sales of stock to the public are rare among new ventures. However, it indicates an expectation of performance of a venture (Shane, 2003). Cassar (2014) found that industry experience is positively related to firm performance. However, Cassar (2014) could not find a relationship between start-up experience (in a specific industry or outside a specific industry) and performance. This indicates that start-up experience is less important for the performance of a new business, compared to industry experience.

3 Proposition building

Now that the sub processes of the entrepreneurial process have been discussed, propositions on their temporal locations will be constructed. In particular, the temporal relationships between the different sub processes will be clarified based on theory and reasoning. In order to answer the research question, the propositions will be evaluated with the empirical data in the analysis section of this research.

Assuming that the sub processes occur in the entrepreneurial process, what characteristics do sub processes have? Similar to a process, a sub process should have a beginning and an end, which can be observed by certain activities that are related to a particular sub process. Relationships between sub processes can be as following: (1) Sequential, where one sub process precedes another sub process and no overlap occurs; (2) Parallel, where two sub processes occur at the same time, completely overlapping each other; (3) Partially overlapping and sequential, where two sub processes partially overlap, while the starting point of one sub

process precedes the other; (4) Parallel and partially overlapping, where two sub processes start at the same time, but end at different times. (5) Indirect relationship, where two sub processes are related through a third sub process, which shows one of the previous four relationships with each of the two sub processes; or (6) No relationship, where two sub processes do not share a relationship with each other.

With the assumption that the entrepreneurial process is not linear and contains feedback loops, how is it possible to empirically find any structure in the entrepreneurial process? What does Shane (2003) mean when he states that the directional sub processes are “accepting of the possibility of feedback loops and non-linearity” (Shane, 2003, p. 12)? Although the face validity of the directional sub processes in this particular order seem to be logical, apparently there are other sequences possible that lead to performance. This already poses a problem for the analysis, in particular: where to start and where to end? The most extreme case of non-linearity poses the question: is it possible to show performance before the existence of an opportunity? As the performance sub process is defined as the exploitation of a new means-end framework and the existence of an opportunity is defined as the formulation of a new means-end framework, it is logically not possible to exploit a new framework prior to its definition. Although a similar means-end framework may exist, the exploitation of a new means-end framework should not occur before its formulation.

Proposition 1: The existence of an opportunity precedes the performance sub process

The discovery of opportunity is defined as the evaluation of the new means-end framework. In order to evaluate a new means-end framework, a new means-end framework must be available. This results in the sequence that the discovery sub process occurs after the existence of an opportunity. Is it then possible to perform an opportunity before discovering its profitability? Once aware of an opportunity, it is hypothetically possible to immediately perform the opportunity. However, theory states that there are two main reasons why an entrepreneur would not do this. The first reason is that the opportunity cost is unclear for the entrepreneur, in order to decide whether or not to commit an opportunity, an entrepreneur should have an indication that the opportunity cost of a means-end framework should be higher than other alternatives the entrepreneur is exposed to (Shane, 2003). The second reason is that the organizing of an entity or market mechanism is necessary to perform an opportunity (Shane, 2003). These two reasons indicate that the discovery sub process should precede the performance sub process.

Proposition 2: The discovery sub process follows after the sub process of existence of an opportunity

Proposition 3: The discovery sub process precedes the performance sub process

The decision to exploit an opportunity refers to committing to a means-end framework. For this sub process to occur, the availability of a new means-end framework is necessary. Indicating that the sub process occurs at least after the existence of opportunity sub process. Assuming that entrepreneurs require a higher opportunity cost to commit to an opportunity (Shane, 2003), the discovery of opportunity sub process should occur prior to the decision to exploit an opportunity sub process as well. However, the discovery and decision to exploit an opportunity sub processes can occur in quick succession, once the opportunity cost are clarified. In opposite order, the decision to exploit sub process would result in a loss of opportunity cost, in case the

opportunity would prove not to be profitable at a later time. The end of the decision to exploit sub process should result in a commitment to realise the new means-end framework. Logically, any effort related to the new means-end framework should not be performed by the entrepreneur without commitment to the new means-end framework.

Proposition 4: The decision to exploit sub process occurs after the discovery of opportunity sub process

Proposition 5: Without positively ending the decision sub process, no other sub processes will be undertaken by the entrepreneur

The resource acquisition sub process is the gathering of funds necessary to exploit a new means-end framework. Since there are two sources for financial resources, namely personal investment or investors, there are two different sub processes that have to be discussed. The gathering of personal investments can occur prior to the entrepreneurial process, in the form of personal savings from prior employment or from profit incurred by previous ownership or investments. This sub process can continue beyond the performance sub process, in case of personal investments, but the relevancy to the entrepreneurial process halts when investments are made for the new means-end framework of interest. Because of this, propositions for this sub process will focus on the acquisition of funds from investors. As was mentioned in the previous section, efforts related to an opportunity will only occur after a decision to exploit an opportunity is made. The end of the sub process of resource acquisition has as a result the availability of funds. These financial resources are needed in the organizing sub process to acquire the resources necessary for recombination in the new means-end framework. This means that the sub process ends during the organizing sub process.

Proposition 6: The resource acquisition sub process ends during the organizing sub process

Entrepreneurial strategy involves the protection of the unique value of the new means-end framework during the performance sub process, as well as the managing of uncertainty and information asymmetry. As with the resource acquisition sub process, the decision to exploit an opportunity is needed to invest time and effort in the entrepreneurial strategy sub process. The end of the entrepreneurial strategy sub process should be completed before the performance sub process. In case the opportunity is not well protected before the performance sub process, there is a risk that the value of the opportunity will be copied by other market players. During the entrepreneurial process entrepreneurs also encounter occasions where the information that was used for the creation of the new means-end framework is at risk. These are during the resource acquisition sub process, when talking to investors, which results in an information asymmetry. Also, when acquiring the needed resources in the organizing sub process the entrepreneur should refrain himself from exposing too much information about the new means-end framework to partners and suppliers. This indicates that the entrepreneurial strategy runs parallel to the resource acquisition and organizing sub processes.

The organizing sub process is the acquiring and structuring of the resources necessary to perform the new means-end framework. In the previous sections it is made clear that it can occur after the decision to exploit is made. However, to finalize the sub process the financial resources are necessary to obtain the resources necessary for recombination, as well as the resources necessary for the entity that performs the recombination. Once completed, the result

will be an entity, which will enable the performance sub process to start. From these propositions and the propositions from the previous sections, it becomes clear that the organizing sub process and the entrepreneurial strategy sub process must run parallel to each other. Also, the resources acquisition sub process and organizing sub process run parallel and partially overlapping, with the resources acquisition sub process ending before the organizing sub process is finalized.

Finally, the performance sub process is the actual execution of the new means-end framework. With the assumption that all the sub processes are necessary to reach the performance sub process, the propositions cumulate into a process model, which shows sub processes that are partially sequential and show several degrees of overlap. Resulting from the previous propositions, the performance sub process starts after the organizing and entrepreneurial strategy sub process. The performance sub process has no particular ending. It is an ongoing process, in which survival, growth, profitability and initial public offering are possibilities (Shane, 2003).

Proposition 7: The performance sub process occurs after the organizing and entrepreneurial strategy sub processes

As a visual aid to the propositions, a Gantt chart is used. A Gantt chart is a diagram, which is commonly used in project management (Krajewski, Ritzman & Malholtra, 2007). The purpose of a Gantt chart is to define and plan activities on a time line, with their precedence relationships and duration time. Project managers can in this way see, for example, which activities can be undertaken simultaneously, the dependencies of different activities and whether there is an overlap of the activities. Since the sub processes can be seen as a single or several activities, they can be depicted on a time line. On the left side of the diagram are the sub processes of interest and at the top is the time line (t1 stands for time period 1, t2 stands for time period 2 etc.), which goes from left to right. The coloured beam over the time line indicates when a sub process occurs. The arrow indicates that a relationship is present between the two activities. The letter 'p' stands for proposition, followed by the number of the proposition. Table 1 gives an overview of the propositions and diagram 1 is a visual representation of the proposed time line, by means of a Gantt chart.

Table 1: Overview of propositions

Proposition 1:	The existence of an opportunity precedes the performance sub process
Proposition 2:	The discovery sub process follows after the sub process of existence of an opportunity
Proposition 3:	The discovery sub process precedes the performance sub process
Proposition 4:	The decision to exploit sub process occurs after the discovery of opportunity sub process
Proposition 5:	Without positively ending the decision sub process, no other sub processes will be undertaken by the entrepreneur
Proposition 6:	The resource acquisition sub process ends during the organizing sub process
Proposition 7:	The performance sub process occurs after the organizing and entrepreneurial strategy sub processes

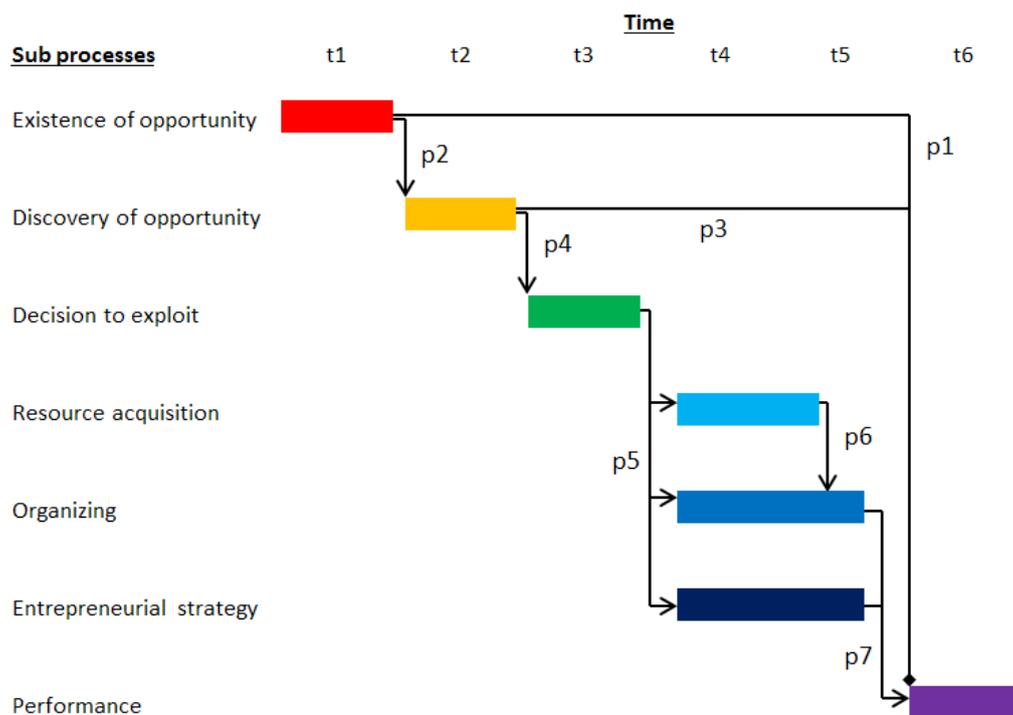


Diagram 1: Gantt chart proposed sequences with propositions

4 Research method

The research method consists of a multiple case study, in particular a time-series analysis with a chronological sequences design (Yin, 2014). The method allows tracing events over time and can be used to “investigate presumed causal effects” (Yin, 2014, p. 214). This is possible, because the model of Shane (2003) displays time periods, which are marked by classes of events (sub processes) that differ from each other. In the propositions section of this research a model for the sequence of the sub processes has been proposed. By means of an operationalization of the sub processes (Appendix A), 4 cases will be coded to display the temporal occurrences of the sub processes of the entrepreneurial process of the entrepreneurs. Consequently, the activities performed that do not belong to the configuration of the eventual business will be filtered out and the occurrences of sub processes throughout the program will be linked to each other. A cross-case analysis will be conducted to integrate the findings. Finally, the data will be compared

with the proposed model and conclusions will be drawn on the temporal locations of the sub processes.

4.1 Venture lab Twente

Since 2009, Venture Labs Twente (VLT) offers an MBA-level business development program to support starting entrepreneurs in their business. This program consists of one year, in which nascent entrepreneurs and young businesses gain the skills necessary to provide a sustainable growth to their company. VLT does this by offering lectures, workshops, panel presentations in front of experts and personal coaches. Even though the gatherings are not obligatory, a financial payment motivates them to get the most out of the programme. VLT started as an initiative from the Dutch Institute for Knowledge Intensive Entrepreneurship (NIKOS), which is an academic centre for entrepreneurship and is part of the University of Twente in the Netherlands.

The secondary dataset for this research consists of the weekly diaries of participants of the university-related business incubator: Venture Labs Twente (VLT). In these diaries, participants were asked to answer four questions: 1) What have you learned this week? 2) Which results have you accomplished this week? 3) Which issues did you encounter this week? And 4) What will be your next steps for next week? In order to account for actual occurrences, and not hypothetical situation or future plans, only the answers to the second question will be analysed. In general, the diaries consist of 52 entries per participant over the course of one year. The participants of VLT are very diverse. Owners of existing companies as well as people without a business idea apply to the programme, with the expectation of improving their current business or finding and concretising their business ideas. Most of the participants have a small or medium-sized enterprises (SMEs) or are on their way towards one.

4.2 Case selection

The case selection is done by means of two questionnaires, of which one was held at the beginning of the VLT program and one was held at the end of the program. The question that is used for the selection is: Have you officially registered a company? In total there are 10 participants that did not register a company at the beginning of the program, but did register one at the end of the program, indicating that a company was founded during the VLT program. The diaries of the 10 participants were collected for closer inspection.

A scan of the weekly diaries, which will be the main source of this research, revealed a few issues. During the collection of the diaries it became clear that 3 cases were not suitable for analysis, due to the small number of entries in the diaries. Two participants did not fill in any entries, while 1 participant had 6 entries in total, with a gap of 9 months in the weekly diaries. 3 other participants were not eligible for analysis since 1 of them had the same entries over the entire course of the year, with little variation. 1 entrepreneur did not establish a new company, but took over an existing one, which is not the topic of this research and 1 entrepreneur has entries that are too short for analysis. An overview of the remaining 4 entrepreneurs is given in table 1.

Table 1: Case selection overview

Entrepreneur	Cohort	Industry	Role
A	2010	Construction	Developer
B	2011	Software	CEO
C	2011	Software	CTO
D	2011	Research	CEO

The selected four entrepreneurs come from different backgrounds. Entrepreneur A is an employee in a construction maintenance company, which has recently been taken over by new management and he is unsatisfied with the new situation. As a solution entrepreneur A is motivated to start his own company. Entrepreneur B and C are business partners, who are doing a PhD in material analysis and have the intention to start a company, which is based on the research of entrepreneur B. Entrepreneur D is recently fired and is involved in several projects as a consultant and has the intention to start his own company based on a new technology.

4.3 Operationalization

To identify the sub processes of the entrepreneurial process in the weekly diaries, an operationalization of the sub processes is needed. In this section the sub processes are described as events that occur in the sub processes, contrary to the different variables that are offered in the theoretical background. The construction of the operationalization is an iterative process, where the theory is compared with the weekly diaries of a single entrepreneur and is then compared to the weekly diaries of the other entrepreneurs, every iteration provides a stronger operationalization of the sub processes. In order to illustrate an event in the dataset, quotes of the entrepreneurs under investigation are given to indicate the occurrence of a sub process.

4.3.1 Existence of opportunity

The existence of opportunity involves the formulation of a new means-end framework. To indicate a new means-end framework, the entrepreneurs mention the development of a product or service. To develop the business, the entrepreneurs go through several phases, that include the features and technical requirements of the product, customer expectations, prototypes, and research and orientation. Overall the new means-end framework can be seen as a new business idea. Examples of quotes related to the existence of an opportunity are:

“With the trainee from [...] I am going to develop a new product” (Entrepreneur A)

“[O]btain knowledge on possible ways to develop and sell software” (Entrepreneur B)

“Research on programming languages: to develop our product (software) we have to choose a proper programming language” (Entrepreneur C)

4.3.2 Discovery of opportunity

The discovery of opportunity involves the discovery that a new means-end framework can be profitable. Little indication is found in the weekly diaries, that the entrepreneurs occupy themselves with the discovery of opportunity. However, the discovery of opportunity can involve a feasibility study to calculate the profitability of the new means-end framework. The value proposition of the opportunity is the focus for the entrepreneurs to indicate whether the new means-end framework shows a potential for profit. Quotes related to the discovery of an opportunity are:

“[W]e have to perform a feasibility study” (Entrepreneur C)

“The financial session was very good. It seems that the business will be well profitable” (Entrepreneur D)

4.3.3 Decision to exploit opportunity

The decision to exploit opportunity involves the decision to commit to a new means-end framework. Most of the entrepreneurs are employed, before they start their own company. Therefore, leaving the current company to setup their own business is a common theme to indicate the decision to exploit an opportunity. In order to make this decision, the entrepreneurs need information by means of for example a market analysis. Emotional incentives to commit to the new means-end framework can be seen when the entrepreneur sees the opportunity as interesting and new. In order to account for the opportunity costs, entrepreneurs do a calculation of prices, desire to make results for clients measurable and strive to make a fair offer to the (launching) customers. Related quotes are:

“Make an inventory of the pitfalls of our new product. Make a stable calculation of the pricing. Make stable contract with all our stakeholders. Because confidence is a weak contract” (Entrepreneur A)

“New proposal to our current employer to start a spin-off company. Our employer is due to savings and the economic recession not capable of supporting our business development idea” (Entrepreneur B)

“Together with [...], made an arrangement to setup a company next to our PhD” (Entrepreneur C)

4.3.4 Resource acquisition

Resource acquisition involves the gathering of financial resources. The entrepreneurs mention several different sources of financial resources. These are banks, investors, institutions etc. They also mention the different types of financial resources, such as grants, investments, subsidies and salary. Other financial resources related topics are financial plans, financial support, project proposals and the actual amounts of financing they need. Examples of resource acquisition related quotes are:

“Introduced business idea with head of the valorisation department of my current employer” (Entrepreneur B)

“Research the possibility to come into consideration for the valorisation grant” (Entrepreneur C)

“With the changed business plan I may have a better chance for financing” (Entrepreneur D)

4.3.5 Entrepreneurial strategy

Entrepreneurial strategy involves the protection of the opportunity from competitors and managing uncertainty and information asymmetry in market transactions. Commonly, the entrepreneurs mention the goal of their company and how to achieve it. The statement of the goal is embodied in the vision and mission of the entrepreneurs. In order to achieve the goal, the entrepreneurs use business models, different strategies, information and advice from partners and experts, and information from the related market, which concerns target customers and

competitors. Other issues involve research and development, intellectual property and the visibility and reputation of the entrepreneurs. Related quotes are:

“I wrote down my vision and some principles about my new business and I discussed it with my coach” (Entrepreneur A)

“Questions to be answered: Which business strategy to choose? What to offer the industrial partners? How to cooperate with them? How to combine it with our PhD?” (Entrepreneur B)

“Filled in business canvas and discussed with business partner” (Entrepreneur C)

4.3.6 Organizing process

The organizing process involves the organizing of an entity or market mechanism to exploit an opportunity. Most mentioned in the weekly diaries is the registration at the chamber of commerce. In order to do so, several entrepreneurs need a notary. Also, in order to organize a new entity, a name is necessary, as well as the type of legal entity the entrepreneurs choose. Apart from the necessities, a website, house style and visitation cards are commonly mentioned topics. Apart from this, setting up the company, buying equipment and negotiating on prices are issues involved with the organizing process. Quotes that illustrate the organizing process are:

“I visited the chamber of commerce and got information about starting a company” (Entrepreneur A)

“Initiate creation of website and contracts” (Entrepreneur B)

“Coming up with a proper name for our company” (Entrepreneur C)

4.3.7 Performance

Performance involves the exploitation of an opportunity. Most mentioned by the entrepreneurs is the acquisition process, which involves contacting new potential customers, keeping in touch by means of a follow-up and making a proposal with the decision maker. Although the entrepreneurs do not start the performance stage, several of the above stated definitions have been mentioned by them in the weekly diaries. Related quotes are:

“This week I have my first sales meeting with a potential new client. This can be very important.” (Entrepreneur A)

“Visited potential new customer. Presented product.” (Entrepreneur B)

“Talking to decision makers about the proposal for the product and service.” (Entrepreneur D)

5 Results and analysis

In the following section the results and analysis are given of the different case studies. A description is given of the entrepreneurial process of each of the entrepreneurs per activity in each sub process. Most of the entrepreneurs have several activities that they perform parallel to the development of their new business. In order to focus on the entrepreneurial process, these side-activities are filtered out if they do not show any relevance to the development of their new business. An interpretation is given on the main issues that need clarifying, resulting in several assumptions. Consequently, the results of the case studies will be discussed in the cross-case analysis.

5.1 Case study entrepreneur A

5.1.1 Description entrepreneur A

Diagram 2 gives an overview of the temporal locations of the sub processes of entrepreneur A. The week numbers correspond to the number of weeks in the VLT program. The existence of opportunity sub process starts in week 28, where the entrepreneur starts work on the new product, in cooperation with a trainee. In week 37 the entrepreneur states that “The most important description of [...] is on paper now” (Entrepreneur A). In week 38 and 39 the entrepreneur mentions that the first phase of development is finished, but a lot more work has to be done in developing the product. The discovery sub process is found in week 34 and 47, in week 34 the entrepreneur shows confidence in his product, stating “I am very confident that my new product [...] will make it” (Entrepreneur A), after having presented at a panel presentation. In week 47 the entrepreneur claims that he will “[...] make a lot of profit [off of] this” (Entrepreneur A), after making calculations of the previous year.

The decision sub process starts in week 30, where the entrepreneur states “[...] I will be an entrepreneur” (Entrepreneur A), due to dissatisfaction about the new management and his recent improvements as a leader. In week 39, the entrepreneur shows excitement for his product, when he sees the product as “[...] interesting and new [...]” (Entrepreneur A). In week 42 and week 43, the entrepreneur makes the explicit decision to start his own company. Entrepreneur A has no entries related to the resources sub process. The organizing sub process is mentioned in week 40, where the entrepreneur gathers information from the chamber of commerce about how to start a company.

The strategy sub process starts in week 34, where after a panel presentation the entrepreneur is given the feedback that the product has no clear vision and no clear goals. In week 37 entrepreneur A plans to find a first client to further develop the product (launching customer). In week 44 the entrepreneur states a vision and principles of the company. In week 46 he finishes the vision, mission and marketing plan of the new product. Although no actual performance can be measured, in week 32 the entrepreneur receives a contact with a potential client, however there is no further mention of this potential client in the remainder of the diaries.

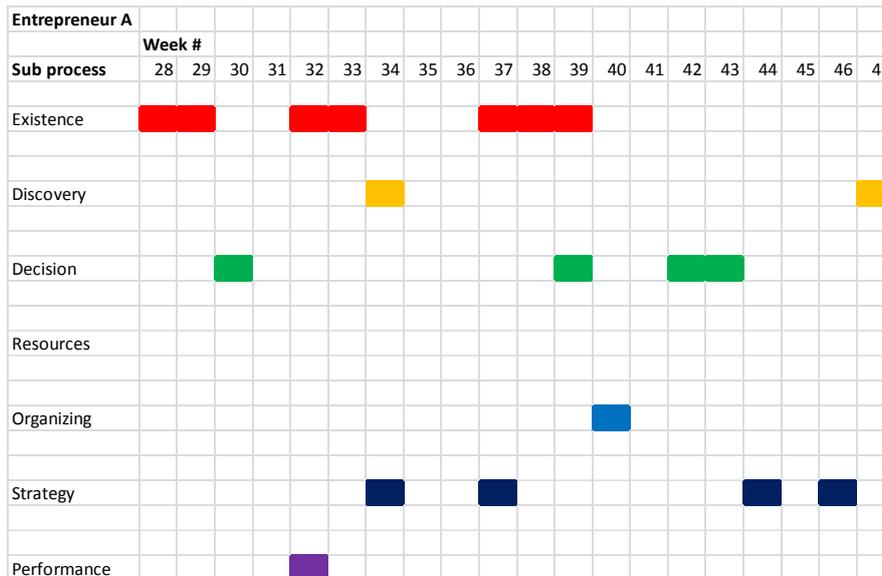


Diagram 2: Gantt chart entrepreneur A

5.1.2 Analysis entrepreneur A

Although the entrepreneur makes several statements related to the sub processes, it seems that not all statements are related to the eventual outcome, namely the actual business. For example, the decision to become an entrepreneur is not the same as deciding to pursue the opportunity at hand and the potential client in week 32 does not show any sign of performance with the entrepreneur, only an introduction. The feedback the entrepreneur receives in week 34 and the desire to have a launching customer in week 37 are not directly related to the eventual business. Also, gathering information to register a company at the chamber of commerce is not the same as actually registering a new company. Keeping the relevancy in mind, the reinterpretation of the entrepreneurial process of entrepreneur A is given in diagram 3.

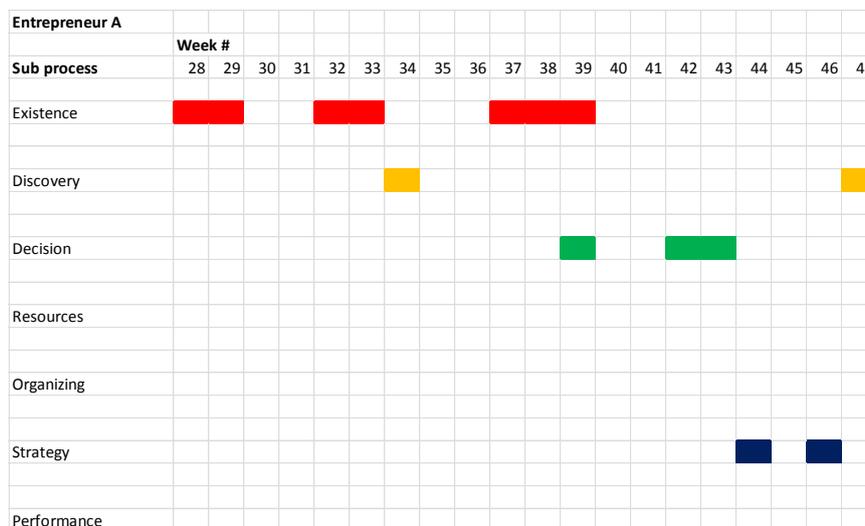


Diagram 3: Gantt chart reinterpretation entrepreneur A

In order to interpret the diaries, theoretical sources are used describe the behaviour of the entrepreneur. The product of the entrepreneur can be seen as a discovery opportunity (Schumpeter, 1934). In week 25 the entrepreneur mentions having to change himself and find new ideas. One week later in week 26 entrepreneur A mentions the product for the first time,

which he lets a trainee develop further in week 28 and onwards. Entrepreneur A has over 22 years of experience in the real-estate sector (LinkedIn, as seen on June 4th 2015), indicating the high level of prior experience of the entrepreneur to be able to discover the value of the opportunity adequately (Shane & Venkataraman, 2000). In the previous weeks of the weekly diaries of entrepreneur A, he mentions that due to the new management of his current employer and the high workload resulting from this, he is very stressed and does not enjoy his work anymore and needs to find another solution. This results in the search for a new opportunity (Harms et. al, 2014). Entrepreneur A mentions that he has stated a vision, mission and marketing plan. Although the content of the marketing plan is not discussed by him in the diaries, it indicates that he has thought about his target group and the unique value he can bring to his customers, although no further discussion is available as to how to protect the opportunity from competitors during exploitation (Shane, 2003).

To normalise the data a few issues must be clarified. Since the opportunity is a Schumpeterian opportunity, this means that the actual existence of the opportunity was already in the environment. Also, Entrepreneur A mentions searching for new ideas in week 25 and mentions his product in the following week, in week 26. The first time the existence of an opportunity was mentioned in the results section of the diaries is week 28. The discovery of the opportunity seems to be done in (in this case) in two stages, the first being based on the intuition of the entrepreneur and the second based on calculations. This observation indicates that the sub process of discovery of opportunity has an subjective as well as an objective component to indicate the profitability of an opportunity. In order to compare the data with the propositions, the existence sub process is indicated by the first mention of the eventual product, since the business idea did not change for this entrepreneur and the other sub processes are connected to each coded segment of that sub process as they are found in the diaries, to indicate a sub process instead of individual activities. This results in diagram 4.

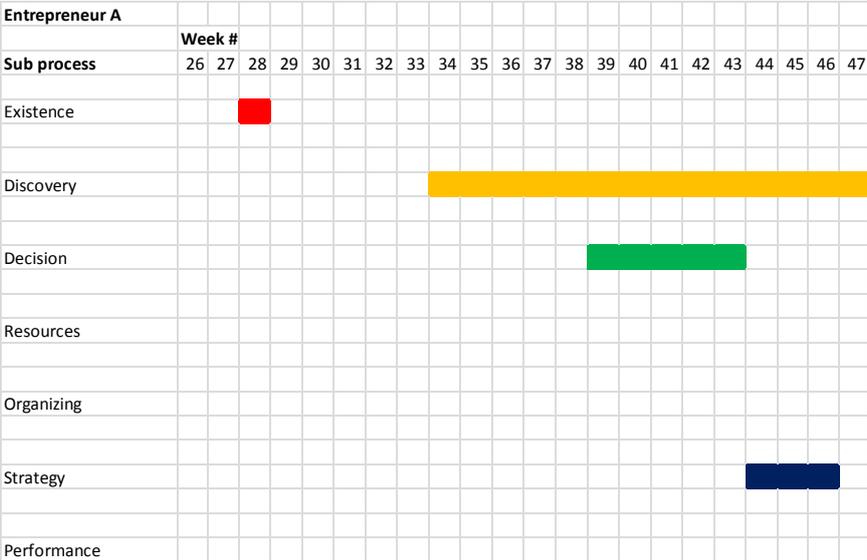


Diagram 4: Gantt chart adjusted entrepreneur A

5.2 Case study entrepreneur B

5.2.1 Description entrepreneur B

Diagram 5 gives an overview of the temporal locations of the sub processes of entrepreneur B. The existence sub process shows its first sign in week 4, where the needs of the industrial partners is obtained. In week 7 meetings are arranged with software development companies that can assist. In week 21 the entrepreneur has several discussions with people that are able to assist in the software development. In week 24 entrepreneur B sets up a feature list for the launching customers. In week 32 a mock-up of the software is worked on. The decision sub process starts in week 1, where a positive response is obtained from the current employer and industrial partners to start entrepreneur B's own company. In week 3 entrepreneur B informs the industrial partners about his plans and tries to set up a go-no go meeting. In week 18 a new proposal is given to the current employer of entrepreneur B to start a spin-off, in response, in week 19 a meeting with the current employer is arranged on how to proceed.

The resource acquisition sub process starts in week 7, where entrepreneur B receives information about several sources for subsidies and funding. In week 17 he states that he is trying to gain funding for product development. In week 36 entrepreneur B worked on a project proposal to gain funding. The organizing sub process starts in week 22 where the start of a website is indicated, as well as the setting up of contracts. Week 23 is spent on the website, logo and name of the company. Week 25 is occupied by the website and the organizing of a symposium for the launching customers to present the start of the company. In week 26 and 29 the website is further developed.

The strategy sub process is started in week 5, where legal advice and marketing advice is gathered by entrepreneur B. In week 11 a presentation is given to the industrial partners, in which the "business idea, motivation and strategy of the spin-off company is presented" (Entrepreneur B). In week 20 entrepreneur B collects different opinions to widen his view on business model creation. In week 31 entrepreneur B obtains his first launching customer. In week 33 the conditions for product development are discussed with the launching customers. In week 34 entrepreneur B obtains a second launching customer and in week 35 negotiations with the launching customers continue. The performance sub process starts in week 28 and 29, where the entrepreneur visits potential new customers. In week 36 the entrepreneur also visits potential customers for consultancy work.

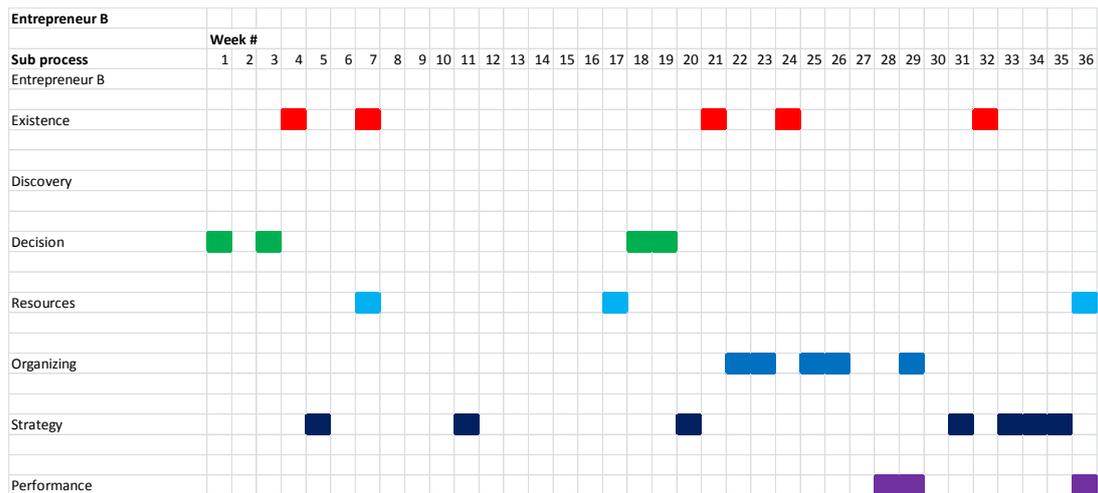


Diagram 5: Gantt chart entrepreneur B

5.2.2 Analysis entrepreneur B

Also with entrepreneur B several statements are not related to the eventual business. The existence of the opportunity is developed during the PhD of the entrepreneur, indicating that it has existed prior to the start of VLT program. Entrepreneur B has decided in the first week of the program to commercialise the product, but is however dependent on the industrial partners to use the required technology. In the resource sub process entrepreneur B gains information for funding through several institutions in week 7 and in week 17 states that he needs to acquire funding. The actual application to the institutions for funding are performed in week 36. Although the strategy of the business is presented in week 11 to the industrial partners, in week 20 the entrepreneur gathers the opinions of several people for input into the business model, indicating that the strategy was incomplete previously. It also indicates that entrepreneur B is putting effort into constructing a viable strategy. The statements made in week 11 are mostly related to the internal activities, while the actual strategy should be related to the external relationships. In week 5 the entrepreneur gathers advice for legal issues and marketing issues, which is general information, unrelated to the actual strategy of the new venture. No signs of performance can be found in the diaries. Although the entrepreneur approaches several clients, no indication of receiving an assignment is found. The reinterpretation of the sub processes are given in diagram 6.

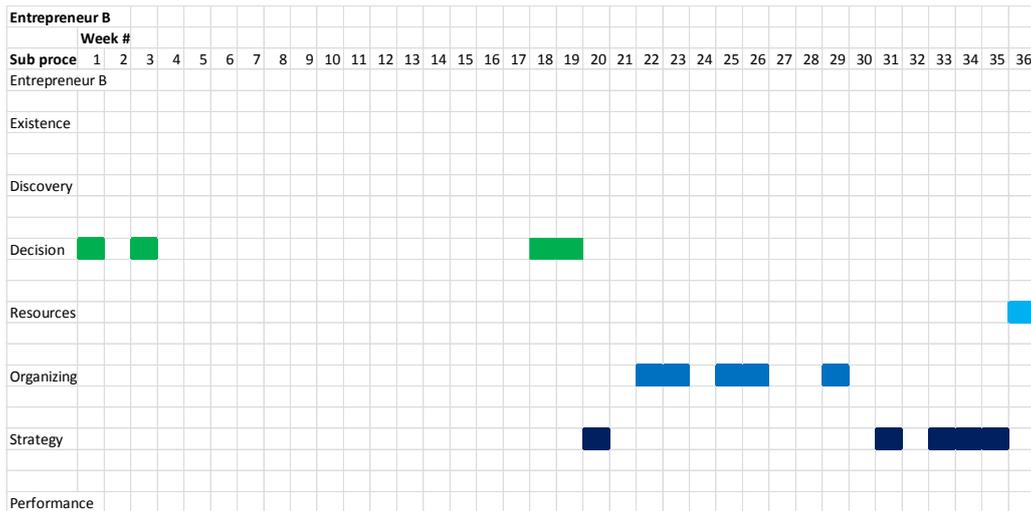


Diagram 6: Gantt chart reinterpretation entrepreneur B

In order to interpret the diaries, theoretical sources are used describe the behaviour of the entrepreneur. The product of entrepreneur B can be seen as a discovery opportunity (Schumpeter, 1934), since it is based on a new technology, which is developed during the PhD of the entrepreneur. In the diaries there are no indications of the discovery sub process, indicating that this sub process has not been performed or prior to the program. The social position the entrepreneur has with his industrial partners make him dependent on the industrial partners to grant him access to the new technology and allow him to commercialize the product (Shane, 2003). The funding is actually acquired through an STW (Foundation for technical sciences) valorisation grant (LinkedIn, as seen on June 8th). The organizing sub process is signified by the creation of a website and the registration at the chamber of commerce (Shane, 2003). The protection of the information needed for the product, is protected by the industrial partners, indicating the legal barrier to imitation (Shane, 2003). Also, the entrepreneur forms an alliance with the industrial partners, gaining access to the resources needed to start his company, which in this case is software (Shane, 2003).

To normalise the data a few issues must be clarified. Since the product the entrepreneur wants to commercialize is a spin-off from his PhD project, the existence of the product should be completed prior to the VLT program. The discovery of opportunity is also not mentioned in the diaries, posing the possibility that the sub process has been completed prior to the program. The decision to exploit the opportunity starts in week 1. However, the entrepreneur is dependent on the decision of his partners, university and current employer. This is due to the propriety of the software, which is needed to start entrepreneur B's business. Entrepreneur B is a business partner of entrepreneur C. In the original Gantt charts of both entrepreneurs, entrepreneur C displays 10 activities related to the business, while entrepreneur B performs 16 in the same amount of time (up until week 25). This may be an indication that entrepreneur B is more active than entrepreneur C. Also, when looking at the reinterpretation of the Gantt charts, entrepreneur B effectively performs 10 activities related to the business opposed to the 6 performed by entrepreneur C.

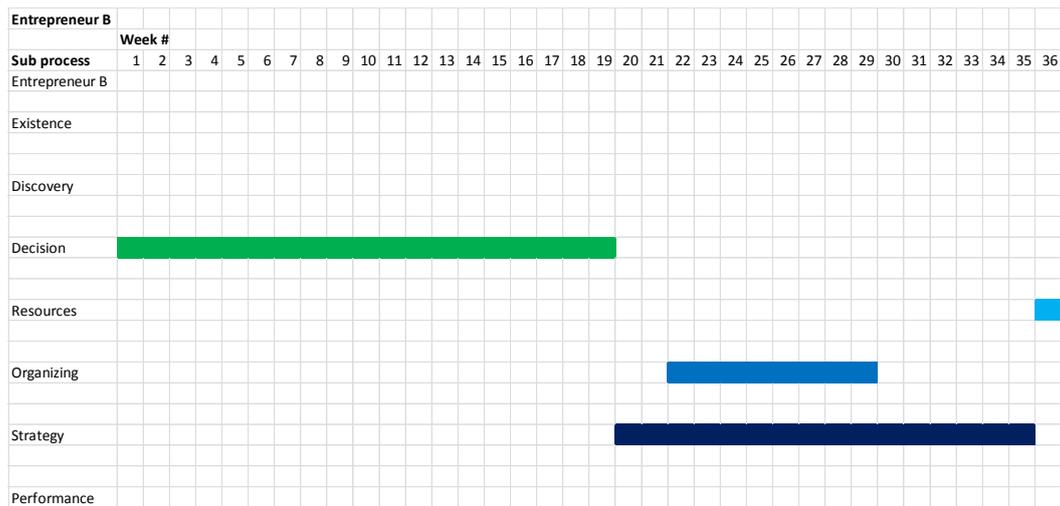


Diagram 7: Gantt chart adjusted entrepreneur B

5.3 Case study entrepreneur C

5.3.1 Description entrepreneur C

Diagram 8 gives an overview of the temporal locations of the sub processes of entrepreneur C. The decision sub process, shows its first signs in week 1, where approval from the current employer to start a spin-off next to his PhD is asked, as well as the approval from industrial partners to use the rights of a certain product. In week 5 a meeting is held with the industrial partners, the current employer and a representative from the university, to further discuss the possibility to start a spin-off company next to his PhD. In week 19 approval is gained from the university, industrial partners and current employer to start the spin-off.

In week 7 a remark is made about resources. Apparently the entrepreneur tried to gain funding through a grant. However, the particular grant is not given, since the “business idea does not fit within the framework” (Entrepreneur C) of the grant provider. In week 25 the organizing sub process is indicated by means of setting up a website. In week 5 the strategy sub process starts. During this week a presentation is given to the involved partners to present the business idea and discuss the IP (Intellectual property) rights. The discussion continues in week 8. In week 12 the entrepreneur fills in a business canvas and discusses it with his business partner. In week 25 a conversation is held with the industrial partners with the intention to use them as launching customers.

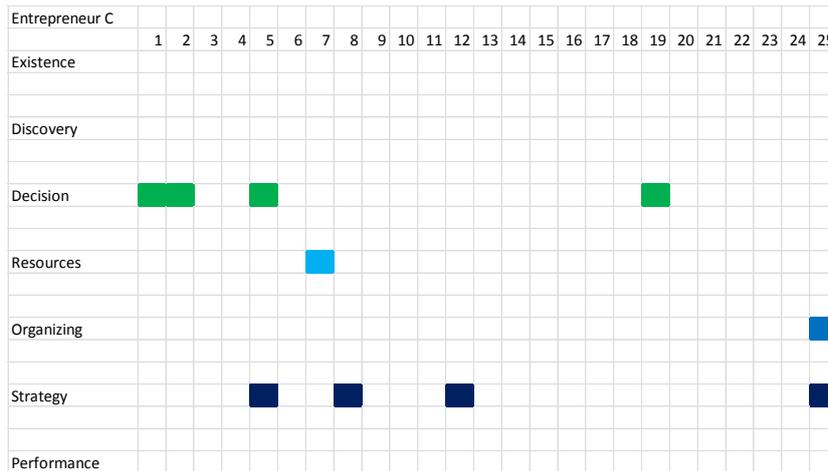


Diagram 8: Gantt chart entrepreneur C

5.3.2 Analysis entrepreneur C

Entrepreneur C is the business partner of entrepreneur B. Similar to entrepreneur B, entrepreneur C shows no sign of the discovery sub process. In addition, the entrepreneur also does not mention the existence sub process. As with entrepreneur B, the product he will commercialize is developed during the PhD of the entrepreneur, indicating that the existence of opportunity was present prior to the program. Similarly, the decision to exploit is not available in the data, indicating that the sub process has been completed prior to the program. The decision sub process is signified by asking for approval from industrial partners, university and the current employer. In week 7 it is mentioned by the entrepreneur that the resource gathering sub process is unsuccessful, losing its relevance to the eventual business. The strategy sub process starts in week 5 with the discussion to gain IP rights from the industrial partners. However, the eventual strategy to use them as launching customers starts in week 25. In week 12 a business model canvas is discussed with the business partner, however with the data from entrepreneur B it can be determined that this version is not the final one for the business model. A reinterpretation of the data of the sub processes are given in diagram 9.

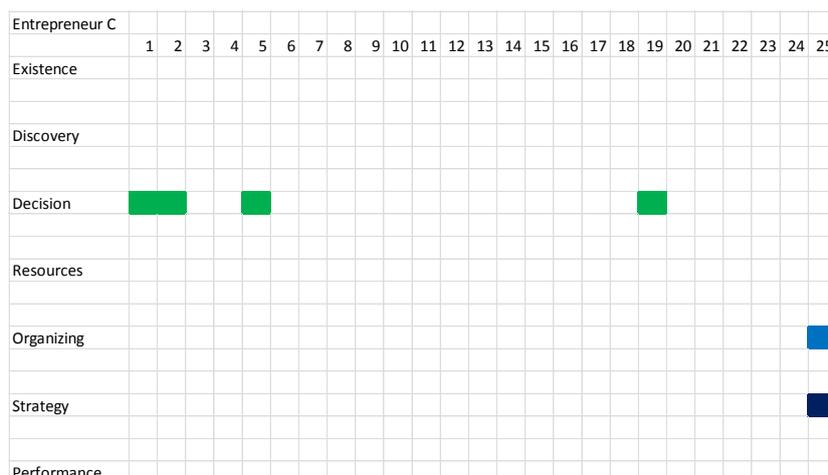


Diagram 9: Gantt chart reinterpretation Entrepreneur C

In order to interpret the diaries, theoretical sources are used describe the behaviour of the entrepreneur. The product of entrepreneur B can be seen as a discovery opportunity (Schumpeter, 1934), since it is based on a new technology, which is developed during the PhD of

the business partner. There are no indications of the existence sub process, nor the discovery sub process, indicating that they may have occurred prior to participation in the program. As with entrepreneur B, The social position the entrepreneur has with his industrial partners make him dependent on the industrial partners to grant him access to the new technology and allow him to commercialize the product (Shane, 2003). This situation practically puts the decision to start a company in the hands of the industrial partners, university and current employer. It seems that the part played by entrepreneur C is smaller than the part played by entrepreneur B in setting up a new entity. Because entrepreneur C stopped filling in his dairy after week 27, entrepreneur B has a better representation of the entrepreneurial process. The protection of the information needed for the product, is protected by the industrial partners, indicating the legal barrier to imitation (Shane, 2003). Also, the entrepreneur forms an alliance with the industrial partners, gaining access to the resources needed to start his company (Shane, 2003).

To normalise the data a few issues must be clarified. Since no statements were found related to the existence and discovery of opportunity are available in the weekly diaries of entrepreneur C, the assumption is made that these sub processes occur prior to participation in the program. The decision to start a company starts in week 1, but is however dependent on the decision of the stakeholders, namely the industrial partners, university and current employer. As mentioned earlier, since entrepreneur C is a business partner of entrepreneur B, it seems that not all tasks are equally divided, since entrepreneur B shows more activity in the entrepreneurial process. Diagram 10 shows an overview of the sub processes of entrepreneur C.

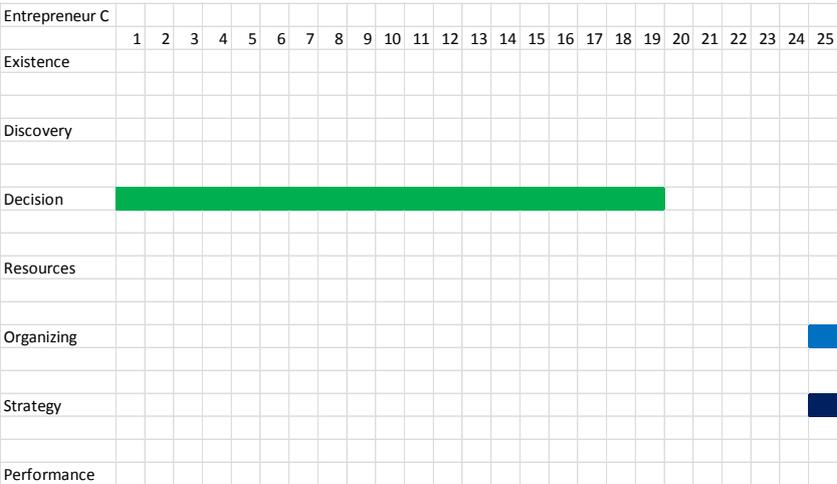


Diagram 10: Gantt chart adjusted entrepreneur C

5.4 Case study entrepreneur D

5.4.1 Description entrepreneur D

Diagram 8 gives an overview of the temporal locations of the sub processes of entrepreneur D. The existence sub process is indicated in week 25, where entrepreneur D indicates that he has “achieved a specific change in my business idea” (entrepreneur D). Instead of trying to commercialize a product, the entrepreneur opts to change his business idea and wants to commercialize a service that is based on his product, which is triggered by his potential partners and the learning that a company already exists that performs similar activities as what he had in mind for the new business. The discovery sub process is indicated in week 36, where the entrepreneur states that the “business will be well profitable” (Entrepreneur D) after a financial

session at VLT. The decision to become an entrepreneur is made in week 1, where the entrepreneur makes an agreement with his mother company to develop a business. However, in week 25 the entrepreneur decides to diverge from his original plan and chooses to pursue another business.

The resources sub process starts in week 12, where the entrepreneur is planning to apply for subsidies. In week 13 the entrepreneur states that he can now receive start-up capital, as an arrangement of 'stamrecht b.v.', which is a tax arrangement, that provides ex-employees the right to store severance pay without paying taxes. In week 24 the possibility of a subsidy project is mentioned. In week 25 the entrepreneur receives a job offer from an institute that is related to his market. Week 28 shows that the contract for the consultancy job offer will arrive in January 2012. In week 42 the entrepreneur indicates that his pitch for investors should be improved.

The organizing sub process of the entrepreneur starts in week 1, mentioning the registration of a company, in order to store the severance pay from his previous employer tax free (Stamrecht b.v. arrangement). Statements made in week 2, 4, 9, 10, 13 and 16 are all related to this arrangement. In week 12 the assembling of a management team is discussed, also in week 16, 17 and 18 this is the issue at hand. The results from these conversations is a 'no' from the team, due to a conflict of interest. In week 26 the registration at the chamber of commerce is mentioned. The entrepreneur states that his notary will arrange the proceedings at present. Weeks 29 and 32 also involve the registration at the chamber of commerce, with week 32 being the official registration week. In week 34 the entrepreneur receives confirmation on support from a supplier, weeks 41 and 43 are also related to finding suppliers.

The strategy sub process starts in week 2, where the entrepreneur receives 2 books on establishing a business plan. Weeks 5, 6 and 7 are also related to the business plan. In week 13 the entrepreneur uses a contact from the university to establish contact with a potential strategic partner. In week 14 the entrepreneur reads the book 'business model generation' in preparation to a workshop. In week 24 the entrepreneur learns of the existence of a competing start-up in the same business as the entrepreneur intends to commercialise. In week 27 a collaboration between industry partners is set up to apply for a funded project. In week 28 the collaboration has been extended to 5 parties in 4 countries. In week 32 a partner informs the entrepreneur that he can commercialise their system and will provide him with a prototype. In week 33 the entrepreneur has a potential launching customer that he needs to call. In week 36 the entrepreneur receives full support from a network in the UK. In week 37 the entrepreneur discusses the start of a joint business with an old colleague. In week 39 and 40 the joint business is approved by the old colleague. The performance sub process is indicated in week 40, where the sales channel of a partner is discussed, however the new company of the entrepreneur will be responsible for the marketing and sales of this partner.

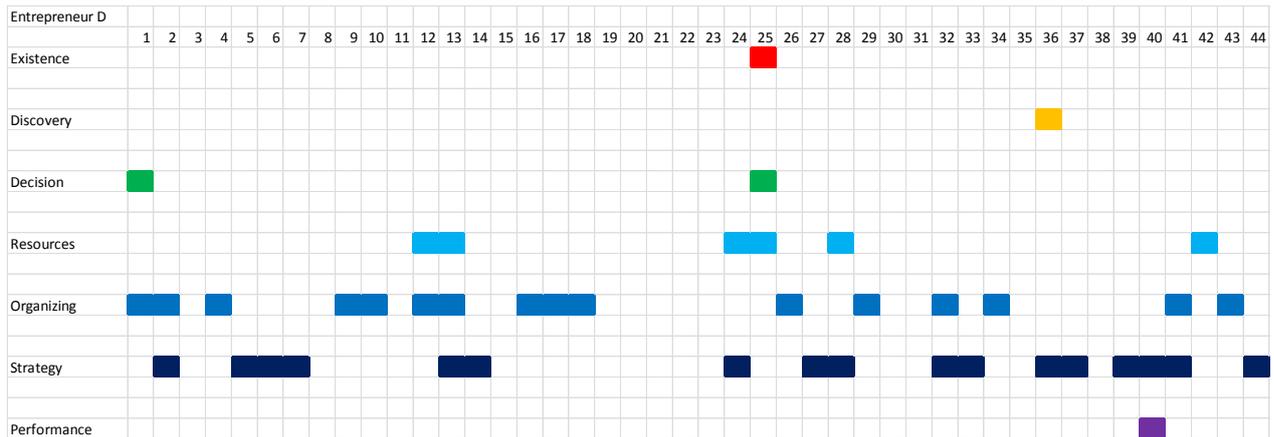


Diagram 11: Gantt chart entrepreneur D

5.4.2 Analysis entrepreneur D

It seems that in the case of entrepreneur D, 2 different opportunities are in play. The first being the product and the second being the service, which is related to the product. The cause for this change seems to be the learning that a competitor with the same business idea exists and that support from the industrial partners is lacking due to this fact. The decision to commercialize a product is not relevant, since the eventual business changes in week 25. The resources as mentioned by the entrepreneur are not directly related to the eventual business, apart from the last entry that is related to resources. The *stamrecht b.v.* arrangement is a tax arrangement to store the severance pay tax free, however there is no direct relationship to the second business of the entrepreneur, namely the service business. The organizing sub process indicators are mostly also related to the *stamrecht b.v.* arrangement. The management team discussed in weeks 12, 16, 17 and 18 do not relate to the new service business, as a clear 'no' is given from the potential team. The strategy sub process indicated in the diagram prior to week 27 are not related to the eventual business of the entrepreneur. They are related to the preparations for a business model, which changes after the entrepreneur decides to diverge from his original plan in starting a product based company. The performance sub process is not present in the diaries, as entry 40 is related to a partnership. The reinterpretation of the entrepreneurial process is depicted in diagram 12.

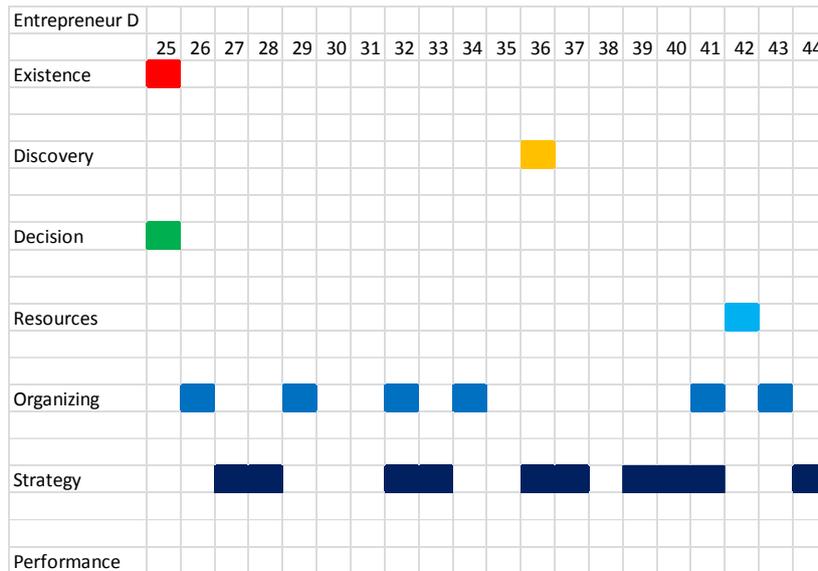


Diagram 12: Gantt chart reinterpretation entrepreneur D

In order to interpret the diaries, theoretical sources are used describe the behaviour of the entrepreneur. The service business of the entrepreneur can be seen as a discovery opportunity, since it based on a new technology (Schumpeter, 1934). However, the existence of the opportunity has also been found by the competitor, whose presence motivates the entrepreneur to diverge from his original business idea. The entrepreneur seems to have diverged in order to guarantee his social position with the industrial partners, with the goal to keep the access to the resources the industrial partners can provide (Shane, 2003). Although the entrepreneur is familiar with the industry, he does not mention explicitly that the opportunity could be profitable, prior to the statement made in week 36, which seems to be a calculated effort. The strategy the entrepreneur uses to establish his company on the market is by avoiding the competition and by achieving a collective agreement with the industrial partners (Shane, 2003).

To normalise the data a few issues must be clarified. The awareness of a competing company drastically changed the route entrepreneur D had planned. It can be argued that the activities prior to week 25 are also related to the entrepreneurial process of entrepreneur D. However, the eventual outcome of this process is the establishment of the second business idea. The network of the entrepreneur played a central part in deciding which business he could exploit. The reason for this is that the potential competitor also has relationships with the industrial partners the entrepreneur is familiar with. The result of the entrepreneurial process of entrepreneur D is depicted in diagram 12.

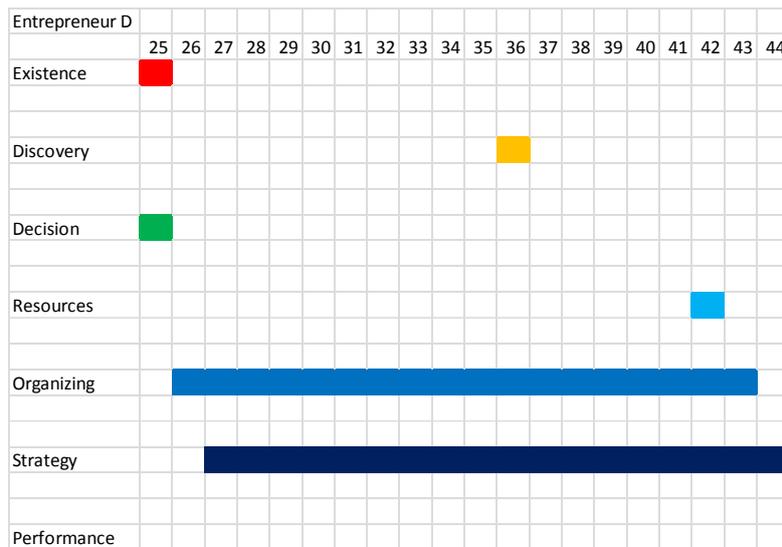


Diagram 13: Gantt chart adjusted entrepreneur D

5.5 Cross-case analysis

In the cases 4 entrepreneurs have been researched during their entrepreneurial process. In the following sections the cases are compared to each other. Similarities and differences are discussed supported by reasons as to why these similarities and differences occur. In addition, the propositions are tested against the empirical evidence to gain insights into the temporal locations of the sub processes.

5.5.1 Existence of opportunity

2 cases have indications of the existence of the opportunity sub process. The source of new information seems to have been discovered in both cases. For entrepreneur A there are indications in the diaries that an active search for opportunity has been conducted. In the case of entrepreneur D a network contact provides new information, namely the existence of a start-up that is exploiting the business entrepreneur D had in mind. This information causes entrepreneur D to diverge from the original business idea, of which the source is a new technology (Schumpeter, 1934). The definition of the new means-end framework of entrepreneur A consists of a new way of organizing, while entrepreneur D develops a new service.

5.5.2 Discovery of opportunity

2 cases indicate the discovery sub process in the diaries. Entrepreneur A has 2 entries related to the discovery, the first being a subjective statement and the second being an objective calculation. Entrepreneur D only states an objective calculation in this sub process. In both cases the discovery of opportunity follows after the existence of opportunity sub process, enforcing proposition 2. In the case of entrepreneur D, it seems that profit is not the main motivator to exploit the opportunity. The social position in his niche industry allows him access to rare resources (expertise knowledge), but his original idea is no option, due to the knowledge that an existing start-up is exploiting his original idea. However, it is a possibility that the discovery of opportunity is an ongoing process, where new information leads to new outcomes that dictate whether an opportunity is still profitable or not. When profitability declines, the decision to quit the exploitation of an opportunity may consequently be taken. Another explanation for the behaviour of entrepreneur D is that the investment he has made in time and effort in his original

business idea are too great to diverge from the network entrepreneur D has built up, which is based on opportunity cost theory (Shane & Venkataraman, 2000). A combination of both explanations is most likely.

5.5.3 Decision to exploit opportunity

All cases mention the decision sub process. While the decision to exploit an opportunity is made by the entrepreneurs B, C and D, these entrepreneurs are highly dependent on industrial partners to go ahead in the entrepreneurial process. This is due to the knowledge and IP they own. Without the partnerships with these industrial partners the opportunities stand no chance to come into fruition, this indicates a relationship between the entrepreneurial strategy and decision to exploit sub processes. 2 entrepreneurs also show signs of a discovery sub process. The decision sub process shows no relationship with the discovery sub process, rejecting proposition 4. In the case of entrepreneur D, the discovery of opportunity sub process occurs even several weeks after the decision to exploit is made. With entrepreneur A the decision is made during the discovery sub process.

5.5.4 Resource acquisition

There are a small number of entries related to the resource gathering sub process. In the diaries there are no indications of investors committing to the businesses at hand. The two entrepreneurs that do mention the resource gathering sub process, only mention it a single time, after the decision to exploit an opportunity is made, enforcing proposition 5. Entrepreneur B applies for a grant at the end of the diary entries, and entrepreneur D states that his investor readiness pitch should be improved, without having approached an investor. This indicates that the intention to gather funds is present, however no funding is gained during the time-span of the program. Through a secondary source it becomes clear that entrepreneur B and C receive a valorisation grant (LinkedIn, as seen on June 10th), which improves their financial buffer and helps them overcome liquidity issues (Shane, 2003). However, how this grant is spent is unknown, due to a lack of data from this period.

5.5.5 Organizing

3 of the 4 cases gave an indication of the organizing sub process. The temporal location of the organizing sub process occurs after the decision to exploit an opportunity is made, enforcing proposition 5. The organizing sub process in the diaries is executed almost parallel to the entrepreneurial strategy sub process in all cases. However, the organizing sub process of entrepreneur B halts after a web presence is established. Indicating the establishment of an entity that serves as a platform for communicating with potential customers. Entrepreneur D requires a more tangible entity. The goal of the company of entrepreneur D is the acceleration of introducing a new technology into the market. In order to accomplish this, entrepreneur D needs a location and research equipment, which is financed through the strategic partners. This situation mitigates the need for funding and shows the relationship between the resource gathering sub process, the entrepreneurial strategy sub process and the organizing sub process.

5.5.6 Entrepreneurial strategy

All of the entrepreneurs show an indication of the entrepreneurial strategy sub process. In all cases the entrepreneurial strategy sub process starts after the decision to exploit an opportunity is made, supporting proposition 5. In 3 cases the entrepreneurial strategy sub process runs parallel to the organizing sub process. In one case the sub process is solely focused on for a period of time. However, this sub process is indicated near the end of the weekly entries. In

three cases the entrepreneurs affiliate themselves with industrial partners in order to further develop their businesses and gain access to resources (Shane, 2003). While in the cases of entrepreneur B and C this is necessary, due to the IP owned by the partners, Entrepreneur D gains access to expertise knowledge. Another advantage of affiliating with the industrial partners is that the entrepreneurs gain a reputation, since the industrial partners are established firms in their sector. Due to the involvement of entrepreneur D with the network, entrepreneur D diverges from his original business idea, when information reaches him about a similar start-up. Indicating a focus strategy within a niche, to avoid competition with the new start-up.

5.5.7 Performance

No indication of performance was found in the case studies. Although statements are made related to customer acquisition. No mention of survival, growth, profitability or experiencing initial public offering were found (Shane, 2003), making it impossible to test propositions 1, 3 and 7. A secondary source was used to see whether the entrepreneurs are still in business today. Entrepreneur A appears to have found a management position, while the company he has started is done part-time (LinkedIn, as seen on June 6th). Entrepreneur B and C are still in business and are offering their software to their clients (LinkedIn, as seen on June 6th). Entrepreneur D is also still in business, functioning as the coordinator of the collaboration that was established by him (LinkedIn, as seen on June 6th). These data indicate that the entrepreneurial process of the entrepreneurs has been successful, but indicates that the profit of the company of entrepreneur A is not enough to maintain his living standards.

6 Conclusions

Recent research has shown that the entrepreneurial process is complex and without pattern, using a framework which is based on entrepreneurial activities. The goal of this research is to use a framework based on sub processes, to indicate the presence of a common structure in the entrepreneurial process. By coding the weekly diaries of 4 entrepreneurs during their time in a business incubator, Gantt charts are constructed to indicate the temporal locations of the sub processes. The coded segments are analysed and compared to the eventual configurations of the businesses. Irrelevant coded segments are deleted from the time lines, resulting in a patterned process. The results show that there are consistencies in the entrepreneurial process, where certain sub processes follow after each other sequentially and other sub processes run parallel to each other. This indicates that the entrepreneurial process shows a pattern.

Overall, there seems to be a structure in the entrepreneurial process, however it is not as straightforward as expected. The two entrepreneurs that display the existence sub process follow this up with the discovery sub process. Also, the decision to exploit seem to function as a catalyst for the resource acquisition, strategy and organizing sub processes for all 4 entrepreneurs. Propositions 2 and 5 have been enforced in the case studies. Proposition 2 indicates that the sub process of existence precedes the sub process of discovery. The discovery sub process seems to more complicated than theory dictates and is potentially an ongoing process that goes beyond the entrepreneurial process, where new information dictates whether a business is still profitable or not. Alternatively, time and effort invested in a network may indicate sunk costs, that are too high to diverge from a certain business network. Proposition 5 indicates that the organizing, resource gathering and strategy sub processes start after the decision to exploit is made. Although the entrepreneurs show several signs of the organizing,

resource gathering and strategy sub processes before the decision to exploit is made, the relevancy with the actual business the entrepreneurs exploit is almost non-existent and consist of general statements. The relationship between the 3 sub processes seem to be more complicated than expected. For example: financial resources can be acquired from strategic partners in order to purchase equipment. This illustration gives an indication of the dependent relationships of the 3 sub processes.

Propositions 4 and 6 have been refuted. Proposition 4 indicates that the decision to exploit sub process follows after the discovery of opportunity sub process. Although no causal link was found in 1 case, alternative explanations have been explored. Proposition 6 indicates that the resource acquisition sub process has to be terminated before the organizing sub process, in order to facilitate the acquisition of assets. The entrepreneurs in the dataset did not show any signs of performance, making it difficult to make assumptions on whether the sub process of organizing have been finalised or not. In addition, the resources used by one entrepreneur for acquiring equipment were funded by strategic partners, indicating a relationship between the organizing, resource acquisition and entrepreneurial strategy sub processes.

No indications were found to refute propositions 1, 3 and 7. Proposition 1 states that the existence of an opportunity precedes the performance sub process. None of the entrepreneurs showed signs of performance, prior to the existence of an opportunity. Technically this would enforce proposition 1. However, no indication of performance was found in the diaries, making it impossible to make inferences about this proposition. Proposition 3 indicates that the discovery sub process precedes the performance sub process. As with proposition 1, no indication of performance before the discovery of an opportunity was found. Proposition 7 indicates that the performance sub process occurs after the organizing and entrepreneurial strategy sub processes. Since no indication of performance was found in the case studies, the relationship between the sub processes of organizing and entrepreneurial strategy, and performance cannot be investigated in the current study.

7 Implications and limitations

This research has several implications for entrepreneurship research. The sub processes of the entrepreneurial process (Shane, 2003) are a viable theory for entrepreneurial qualitative process research to build on. The full diaries of the entrepreneurs were used to construct a coding scheme based on the sub processes. However, to indicate which activities are relevant to the eventual business of the entrepreneur is a matter of understanding the case at hand. A validation with the entrepreneur in question is advisable in order to increase the validity of the research. Although some activities are not related to the actual business of an entrepreneur, these mistakes, divergences and iterations may impose learnings on the entrepreneur in question. This research started with 164 entrepreneurs and using the case selection method of Yin (2014), resulted in 4 entrepreneurs for analysis. This indicates that finding a suitable case is quite difficult. Finding a complete case proved to be too difficult with the current dataset.

This research has several implications for practitioners. From the case studies analysed in this research, several implications can be drawn for practitioners of entrepreneurship. The decision to exploit an opportunity is not always in the hands of an entrepreneur, as was seen in 3 out of 4 cases. Being able to convince the stakeholders is an important characteristic of an entrepreneur. Diverging from a business idea to avoid competition is sometimes necessary, as entrepreneur D shows. In this case the stakeholders involved had close relationships with the potential

competitor, which demotivated them to support the business entrepreneur D had in mind. This illustrates that a unique value in an industry must be obtained, to add value to the stakeholders. Finally, there seems to be a consistent pattern in the organizing and entrepreneurial strategy sub process. The 2 sub processes run mostly parallel to each other in 3 cases. However, also the resource acquisition sub process shows a relationship with the entrepreneurial strategy and organizing sub processes, indicating a distributed focus of the entrepreneurs on the resource acquisition, strategy, and organising sub processes during the final stages before performance.

This research has several limitations in the dataset. The secondary dataset used in this research was not meant for the purpose of this research. The role of the weekly diaries is to give the entrepreneurs a platform on which they can reflect on their learnings and activities, problems they encounter and plan for future activities. As a result from this, the dataset was not completely in line with the current research. Secondary data to support the evidence was also mostly unavailable, to triangulate findings. Although these issues could be solved by means of interviews, the research method did not include them, based on the non-disclosure agreement that was signed by the researcher and the requirements of a master thesis. Apart from this, the dataset itself can contain instances of recall bias. The possibility that not all activities and results are discussed by the entrepreneurs in a complete and elaborate manner is a possibility, even though the diaries were filled in on a weekly basis. Another issue is the completeness of the case study. There were no cases in which the complete entrepreneurial process was present from existence to the performance sub process. This is a common problem in entrepreneurial research. Finally, since the number of cases is small, generalisations may be unreliable.

This research has several limitations in the methodology. The researcher's bias is a main threat to validity in the methodology. Although measures have been taken to compensate for researcher's bias, in several instances an interpretation of the data was needed, for example assumptions on which configurations the eventual companies of the entrepreneurs have. It is possible that the strategy, organizing and resource gathering sub processes continue for a certain period of time, altering the configuration of several resources in the eventual entity that performs the means-end framework. Since no signs of performance are observed, this is impossible to examine with the current dataset. Another limitation in the methodology is the case selection. The entrepreneurs in the sample are all first time entrepreneurs from an incubation program, since registration at the chamber of commerce was the variable used in the selection criteria.

To conclude, this research has found that the entrepreneurial process shows a pattern, which has several implications for future research. Contrary to recent findings (Liao & Welsch, 2008), the entrepreneurial process shows a consistent pattern, where the sub processes of existence and decision to exploit follow each other sequentially. After the decision to exploit is made, the organizing, strategy and resource acquisition sub processes start. However, since the sample size in this research is small, future research should validate these findings by replicating the study at hand. Future research may also investigate the impact on the entrepreneurial process of mistakes, divergences and iterations entrepreneurs make in the different sub processes and how they influence future decision making processes of entrepreneurs. The resource acquisition, organizing and strategy sub processes are found to have a close relationship with each other. Future research may investigate how these three sub processes are related and whether different typologies exist. Due to the selection procedure experienced entrepreneurs were not part of the sample. Future studies may examine the sub processes of entrepreneurs with

previous start-up experience, to see how their sub processes are temporally located. Finally, this research has focused on successful entrepreneurs. Future research may investigate the failed entrepreneurial processes and investigate whether they skipped a sub process, which could lead to interventions that increase the survival rate of new businesses.

Appendix A: Coding Scheme

Existence

Theory: new means-end frameworks, new products or services, new ways of organizing, new raw materials, new markets and new production processes, discovery, creation, new information

Entrepreneur A: Mainly talks about a new product, which is based on [...]. And the development of it. Also mentions solutions and new ideas.

Entrepreneur B: Developing and selling software with software developers. Expectations from customers about product, software features, needs of customers, technical requirements/needs vs problems, product information

Entrepreneur C: [...] (software), research on programming language, software development

Entrepreneur D: Change in Business idea ([...] service and analyser), Prototype

Combined: Product, development, software, developers, customer expectations, features, customer needs, technical requirements, product information, research, orientation, platform, idea, business idea, prototype

Discovery

Theory: evaluation, value, demand, profit margin, young tech cycle, low cost of capital, learning, alternative opportunities the entrepreneur is familiar with, the amount of capital the entrepreneur owns, strong social ties to resource providers, familiarity with an opportunity from previous work experience, and transferability of information from the prior experience, opportunity novelty, resource efficiency, and worst-case scenario

Entrepreneur A: My product will make it, a lot of profit

Entrepreneur B: Does not mention discovery related issues

Entrepreneur C: feasibility study

Entrepreneur D: profitable

Combined: feasibility study, profit, profitable

Decision

Theory: commitment, opportunity cost, education, career experience, age and social position. Autonomy, purpose, enjoyment, flexibility, and financial incentives, motivation, core evaluation and cognition, self-efficacy and locus of control, the cognition of entrepreneurs show overconfidence when little information is available, as well as over-generalize the information and base decisions on intuition

Entrepreneur A: Talks about starting his own company, information to make a decision, leaving his current company, talks about calculations of price, measurability of results, wants to see how clients react, investigation, finds it interesting and new

Entrepreneur B: Discussion with current employer about working on his own business, how to give a fair offer, proposal to start spin-off company, contacts that can help, product offer for launching customer, customer research

Entrepreneur C: Market analysis, do's and don'ts and practicalities when commercialising software, made an agreement to setup company, making agreements with industrial partners

Entrepreneur D: Workable scenario, free of conditions,

Combined: information to make a decision, leaving current company, calculation of price, measurability of results, customer reaction, interesting and new, current employer, own business, fair offer, spin-off company, market analysis

Resources

Theory: self-financing or investors, a line of credit with a bank, contracts, specialize in an industry, remain involved in with a new venture, and invest in implicit contracts in the form of social ties

Entrepreneur A: Does not mention financial resources

Entrepreneur B: valorisation department of employer, subsidies, finance, financially support, funding for product development, project proposal, TOP program, STW valorisation program

Entrepreneur C: possible ways of cooperation (launching customers/ research projects/ subsidies/ grants), ICT labs, kennispark twente for support, consideration for valorisation grant

Entrepreneur D: funding, funded project, financing, money, salary, investor readiness, distributed shares, 300K, financial plan, bank, investments

Combined: sources of financial resources: subsidies, banks, investors, grants, financial support. Financial plan. Finance itself: Money, salary, 300K, investments

Strategy

Theory: protection of the opportunity from competitors and managing uncertainty and information asymmetry in market transactions, secrecy or introducing barriers to competitors, controlling the resources needed to exploit opportunities, establishing legal barriers to imitation, exploiting opportunities at a scale that deters imitation, establishing a reputation, and innovating to stay ahead of competition, Starting on a small scale, by means of acquisition, by using a focus strategy to avoid main stream competition, by keeping the organization flexible and adaptive, by forming alliances with established firms, using the established firm's reputation. Other ways to overcome uncertainty and information asymmetry are based on legitimation and involve "imitating existing firm's routines and competencies; by achieving collective agreements on standards and design; and by obtaining certification from reputable authorities"

Entrepreneur A: Principles of new business, target, vision, what to achieve with his company, discover the market and customers, higher purpose of company, mission, marketing plan, discovered new clients, pains and problems of customers, marketing investigation

Entrepreneur B: Business model, industrial partners, cooperation, legal advice, marketing advice, IP issues, added value, user-friendly software, consultancy, R&D, what to offer industrial partners, Software as a service, opinions for business model

Entrepreneur C: Legal rights of using the software package, business plan, use of IPs, vision, goal strategy, cooperative strategy, cooperative development, business canvas, competition study, launching customers

Entrepreneur D: collaboration, partners, network, parties, possibilities, launching customers, collaboration partner, competition, support, international reputation, strategy, competitive situation, company profiles, prices, pricing, strategic,

Combined: goal of the business, business model, vision, what to achieve. How to achieve it, advice, strategy, legal rights, partners, business canvas, mission, market and customers, R&D, IP, competition, visibility, PR, reputation, partners,

Organizing

Theory: the organizing of an entity or market mechanism to exploit an opportunity, The organizing process is the gathering and configuring of these resources, which are needed to create the entity that will perform the recombination of resources through the new means-end framework. The organizing process of an entity involves activities such as obtaining equipment, setting up production processes, gathering employees and registering legal entities

Entrepreneur A: finding stakeholders, supporting software, a lot of talking, new contacts, contacts with potential partners, chamber of commerce, preparations, name for the company, legal advice, working on his own company, partnership.

Entrepreneur B: 4S-model, to do list, setup meetings with business partners, people with expertise, website and contracts, logo, name, organised symposium, legal agreements

Entrepreneur C: Name, website, 4s-model, to do list, web design, house style, visit cards, VOF, KVK

Entrepreneur D: Check, actions, notary, established, signed off, b.v., registered, got, submit, joint start-up, joint activity, agreed, buying equipment, OEM deal, negotiate, set up,

Combined: Chamber of commerce, name for the company, website, logo, name, web design, house style, visit cards, VOF, BV, notary, buying equipment, setup company, negotiate on prices

Performance

Theory: survival, growth, profitability and experiencing initial public offering

Entrepreneur A: client, potential client, plans and preparations for client.

Entrepreneur B: Acquisition, work, new customer, presented product, keep in touch, buy,

Entrepreneur C: Does not mention performance related issues

Entrepreneur D: Agreement consultancy,

Combined: Client, acquisition, customer, keep in touch, proposal, quotation, decision maker, proposition, follow up,

Appendix B: Related quotes

Entrepreneur A

Existence

Week 28: My trainee has started to describe a new product

Discovery

Week 34: I am very confident that my new product [...] will make it. Weak points are: not a clear vision. No clear goals.

Week 47: I counted my overturn and my profit for 2011 and I have very good figures. I am going to make a lot of profit this

Decision

Week 39: I have accomplished the first phase of the development of my product. It is interesting and new, but there has to be done a lot more development in which I need more people to help me.

Week 42: I am going to take a decision and discuss this with my coach about my future.

Week 43: I am going to start my own company.

Strategy

Week 44: I wrote down my vision and some principles about my new business and I discussed it with my coach.

Week 46: I finished my vision, my mission and my marketing plan. I discovered a few new clients

Entrepreneur B

Decision

Week 1: Positive response (some critical points: I have to finish my PhD) Open for collaboration between current employer, our company and industrial partners.

Week 3: Informed industrial partners about our plans. Currently trying to set a date for the go-no go meeting with these partners

Week 18: New proposal to our current employer to start a spin-off company

Week 19: Meetings with current employer how to proceed

Resources

Week 36: Worked on possible FP7 project proposal. Made new network contacts in this field

Organizing

Week 22: Initiate creation of website and contracts

Week 23: Worked on website, logo, name

Week 25: Worked on website and organized symposium in cooperation with launching customer to present start of business

Week 26: Creating website

Week 29: Created website, contacted new customers

Strategy

Week 20: Collecting opinions from different people to widen our own view on business model creation. Setting up different business models from different core activities

Week 31: Agreed on first launching customer for software development: [...]

Week 33: Discussed with launching customers on conditions for product development

Week 34: Both [...] have agreed upon cooperation in product development: 2 launching customers.

Week 35: Continued negotiations with launching customers

Entrepreneur C

Decision

Week 1: I had a meeting together with [...] (business partner) with our employer [...]. We discussed the possibility to start up as a spin-off of [...], the combination of starting a business with doing a PhD and the legal rights of using the software package

Week 2: [...] reacted positive to start-up as a spin-off. The possibility to start during our PhD (1 day a week) must be discussed further since extension of our contract is restricted by legislation. The rights to use [...] has to be discussed with the industrial partners involved in our project. Therefore, a meeting will be planned together with all industrial partners ([...]).

Week 5: The goal of this meeting is to present our business idea, to discuss IP rights and the possibility to start a business during our PhD.

Week 19: Tijdens ons promotieonderzoek is het vanuit [...] en [...] mogelijk 1 dag in de week aan ons business idee te werken.

Translation: During our promotion research, [...] and [...] allow us to work 1 day in the week on our business idea.

Strategy

Week 25: In gesprek met [...] om als launching customers te gebruiken

Translation: In conversation with [...] to use them as launching customers

Organising

Week 25: Opzet website

Translation: Set up website

Entrepreneur D

Existence

Week 1: I have achieved a specific change in my business idea.(from [...] business to [...] service and analyser).

Discovery

Week 36: The financial session was very good. It seems that the business will be well profitable. Financing must be possible without distributing shared

Decision

Week 25: I have achieved a specific change in my business idea.(from [...] business [...] service and analyser). [...] products will be a potential business as a future growth scenario.-triggered by my process to [...] and to other potential partners

Resources

Week 42: had my final panel presentation: scores were quite ok, maybe improvements for investor ready pitch necessary

Organizing

Week 26: My next B.V. is going to be established by the notary at present. [...] B.V. will be signed off January, 5th, 2012(aim: [...] analysis laboratory service (predominantly CT) and building of analysers (e.g. for CT) and devices

Week 29: [...] B.V. will be signed off early February

Week 32: ISIRAY B.V. exists from this week on, Feb 9th

Week 34: I had contact with the Spanish group ([...] consortium)result: I can have every [...] detector from them and even more: I may have support from the Spanish national electronics / micro technique institute (I have helped the Spanish group in a very special way in the past)

Week 41: I got the ok from partner of Italy to negotiate with player in France about profound OEM deal.

Week 43: I have the allowance from my partners to set up OEM deals with big players. importance: this expresses utmost confidence of my partners in me

Strategy

Week 27: collaborations: we will apply for a funded (most probably @ [...]) detector project and build up a consortium consisting of partners of excellence, having proven to be the best in high-energy pixel detectors. Please notice: this is at least equal or even superior to the [...] developments in this field!!! And we do not need to pay for licenses in the way [...] charges! (the project conditions will be discussed early February).

Week 28: project consortium for [...] project: is grown to 5 parties in 4 countries. meeting will be Feb, 6th.

Week 32: One of the partners / CH / says that they will give me a letter of intent that I can commercialize their special [...] optical system. This is a fantastic move! And even more: they say that they will produce a prototype for me and give it to me. I am speechless by these results

Week 33: I have a potential launching customer which I need to call

Week 36: got 'full' support of Uni Prague in CT. I explained my business ideas. This was new to them and they find it really excellent!!! 2) got support from the UK network: full success

Week 37: at least: 2 important appointments for strategic collaborations for the next 4 weeks: 1) Prof [...]: after 3-4 years of last strategic discussions now a new start of joint business opportunity ([...] / CT with corresponding markets and customers) 2) Prof CT applications: After 6 years of previous discussions now a new starting point for strategic business activities.

Week 39: Their technology is very ripe and the best in class (even better than the corresponding [...] technology). Additionally it is free of licenses / limited market segments and version of the products. We agreed on this collaboration / partnership. Substantial sales is necessary in the coming year 1. If everything goes well, our partnership will be set up for a long time

Week 40: [...] agrees on collaborations of any kind with me. I talked with the deputy director whom I already visited 6 years ago. He was very positive about the fact that I am coming with such drive and proposals. Follow up invitation has been given. b) marketing / sales for the small CT analyser is ok. they already have a sales channel, but 'the world is large' and the Director agreed directly that [...] may take this initiative in hands. c) I made a new contact with an [...] lab who wants to collaborate on service analysis for the south Germany's ceramic industries.

Week 41: My strategy is clear for me now. By visiting 1 important potential partner (FRA) and a very important exhibition I now have seen how everything fits in my company strategy.

Week 44: I am invited to discussions end of the month at a potential strategic partner in CT for new technologies.

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