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Planning sophistication and planning commitment  
by entrepreneurs in the phase of their business start  
up

By

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**S0159816**

## Management Summary

The question: "why some entrepreneurs become successful and others fail?" is a question that many researchers hold for many years (Markman & Baron, 2003). Entrepreneurship consists of many facets which could predict the likability for future entrepreneurial success. One of these facets entrepreneurs are coping with is the way how they execute their steps in pursuing their goals. For this study the focus is on the planning behavior of entrepreneurs who participate in a living lab setting created by Venturelab. Especially the sophistication and the commitment towards that planning is here of interest. Some entrepreneurs don't plan too much and keep their ideas in mind, where others refine their actions in order to obtain their pre-selected goals. Also the aspect of the difference between stating actions and actual carry out those actions is considered to be an important indicator to be able to define the effect planning has on performance. For this study we measured performance based on the judgment that is composed by the rating scheme of Frei (2004) and is rated by an expert panel. The central question for this study is:

*Does planning sophistication contribute towards better future performance in new venture start-ups when entrepreneurs commit themselves to their planning?*

This study has shown that the sophistication of planning does not significantly show a linear regression with the likeliness of future performance. From theory we know that planning consist of two mainstreams; Structure and Content. When we look only at the sophistication of the structure of the planning and the relation to the likeliness of future performance , no significance in the linear regression between these constructs has shown . Also, when we only take the sophistication of the content of planning in consideration in relation to the likeliness of future performance no significance has shown. This means that the sophistication of planning is not a good indicators for the likeliness of future performance by entrepreneurs who participate in the business development program.

The strongest and probably the only claim for this study is that the commitment towards earlier stated planning showed significant results regarding the linear regression between planning commitment and the likeliness to future performance by entrepreneurs.

The conclusion here is, based on the results shown in this study, that entrepreneurs need to control for committing themselves to their earlier stated planning in order to obtain a higher probability on the likeliness to perform better in respect to those who do not commit themselves to their earlier stated planning.

## Preface

During the final stage of my Master study Business Administration; Service Management; I spend more than average time on my Master Thesis assignment. Due to personal issues and a bankruptcy of the company where I would fulfill the initial assignment, the time I spend on graduation is almost that of someone who would get his PHD at the University. For me this period was one of intensive learning's, self development but most important experiencing faith of others who gave me the opportunity to fulfill my aim to graduate.

Therefore I would like to thank the most important people who helped, facilitated, dragged me through and supported me in realizing the completion of my final assignment at the University of Twente.

In the first place this is Jeroen Kraaijenbrink, my first supervisor during the three and a half years I spend on completing the master thesis assignment. I realize that I am very lucky he has the patience and the everlasting supporting attitude. I experienced this as very pleasurable and especially the corporation in the last weeks which helped me to graduate before the start of my first job is something I am very grateful for. Second this is my loving family and girlfriend who supported me all time and have made the completion of my master thesis assignment and the time for personal development possible. The last person I would like to thank is Michel Ehrenhard, my second supervisor. In line with Jeroen Kraaijenbrink I respect his patience regarding my process and developments over time. Michel guided me several times in the right direction with clear examples or suggestions for resources to strengthen my knowledge base and new ideas on how to proceed.

I am proud that eventually this thesis assignment is completed. It took a lot of effort, but it was all worth it. I hope you will enjoy reading this thesis.

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## 1. Introduction

Entrepreneurship is a very important vehicle for economic development, as well as for regions as for countries as a whole. Whereas every new venture starts with an idea, and the will to invest time and money to market this idea, not every entrepreneur reaches desired development or success. Studies towards the behavior of entrepreneurs in their first phase of the new venture are a research topic for decades. It can help future entrepreneurs to enhance the probability of success in early stages of new venture development. This study will focus on the relationship between the effect on performance due to the commitment towards future business and entrepreneurial planning by means of weekly diaries and the level of sophistication of that planning.

The question; “Why some entrepreneurs become successful and others fail”, is a question that researchers have for many years and still cannot be answered clearly (Markman & Baron, 2003). This study will contribute to that main question in studying a specific part of entrepreneurship, namely: the effect of planning sophistication and planning commitment on performance. Starting up a new venture is like a big project for an entrepreneur. Because the business will not grow by itself the entrepreneur have to undertake actions which are probably aimed at fulfilling the mission and in most cases making profit. Whereas it has been noticed, due to earlier studies, e.g. that the level of sophistication in the way entrepreneurs plan these actions can differ (Groen & Kraaijenbrink, 2010). Following up this study some exploration towards the effect of planning sophistication on the entrepreneurs' performance could give more insight in the approved method for e.g. entrepreneurial incubator programs to facilitate their business development program participants. Exploring the effect of planning sophistication on performance can contribute towards the central question many researchers have related to the effect of planning and entrepreneurship.

### 1.1 Research goal

Planning in the first phase of a new venture can be carried out in several ways. From a vague concept in the mind of an entrepreneur to an extensive business plan with detailed action planning. The question if planning, and the level of sophistication within this planning, contributes to a higher likeliness of success is here of interest.

### 1.2 Central research question

Does planning sophistication contribute towards better future performance in new venture start-ups when entrepreneurs commit themselves to their planning?

### **1.3 Outline of the thesis**

This thesis will start with an oversight of relevant theory about the variables of interest, after this section the methods used for this study are being explicated and underpinned. The theory is explicated and from theory, with the central research question in mind, hypothesis are drawn. Based on the theory and the methods used the results will be shown were statistical inferences are carried out in order to accept or reject the posted hypotheses. In the last section of this thesis the conclusions and discussion about this study will be treated, were the results are interpreted

## 2. Theory

This theory section is written to get insight in to the current knowledge base regarding the relationship between planning sophistication and performance of small businesses and new ventures. The literature review will start with a global explanation about the planning-performance relationship. After that, planning sophistication will be explained, followed by the explication of literature about the different levels of sophistication. Then the review about planning sophistication will be refined to determine the measurable characteristics of the different levels of planning sophistication and its relationship towards new venture performance. Finally the concept of planning commitment will be explained as a moderating variable in the effect planning sophistication can have on future performance. Also this variable, the level of planning commitment, will be refined to determine measurable characteristics of the different levels of planning commitment.

### 2.1 Introduction in to the relation between planning and performance

The relationship between planning and performance is of interest since the late 1960's (Rue & Ibrahim, 1998). In the first period this topic got attention from scholars and researchers the focus was predominantly aimed at large firms and its planning-performance relationship but meantime also small businesses became an interesting research topic.

Literature is predominantly in favor of the argument that planning is a key issue for small businesses. Planning does not only increases the success rate (Jones, 1982), but it also affects the level of performance (Schwenk & Shrader, 1993) Also some authors do place question marks by the positive relation between planning and performance in the start-up phase of new ventures. Castrogiovanni (1996) examined literature regarding the absence or differed relationship between planning and performance. Examples given by Castrogiovanni are studies of Fulmer & Rue (1974) , Hogarth & Makridakis (1981) , Kudla (1980)and Leontiades & Tezel (1980) who identified no relationship or indicated that the results regarding the relationship differed across industry sectors. Besides, a large amount of researchers place methodological concerns with the causality between planning and performance and thus about the way the relation between planning and performance is measured; examples given by Castrogiovanni are studies of (Bracker & Pearson, 1986), (Pearce, Freeman, & Robinson, 1987) and (Ramanujam & Venkatraman, 1987)

The literature about planning for entrepreneurs is somewhat diffused by the mix of the concepts of planning as an activity and planning in the sense of writing a business plan. For this study the activity planning (in mind and/or written down) is here of interest and not the concept of writing a business plan. Despite the number of authors who are in favor of the positive effects business plans could have there are also enough opponents of this argument. (Honig & Karlsson, 2004) Whereas the detailed comparison falls behind the scope this study an important detail of the difference in meaning and why



the “cognitive activity planning” is here of interest is because business plans provide a snapshot of the entrepreneurs’ approach at the time of starting the business. (Kraaijenbrink & Ratinho, 2010) Some of the entrepreneurs in this study are still in their pre start-up phase, and thus before the phase of writing a business plan (if necessary) but are already planning or not planning their steps to become closer to their initial idea of becoming an entrepreneur.

## **2.2 Planning sophistication.**

Planning is an attitude and a process concerned with the future consequences of current decisions (Steiner, 1979). Planning sophistication is the level of detail and the extensiveness that is used by thinking about, and writing down the future steps to take (in this case within the start-up phase of a new venture), in order to achieve the objectives of the new venture. (Piercy & Morgan, 1994)

An important finding for this study is the idea of Bracker and Pearson who identified different levels of performance associated with different levels of planning (Bracker & Pearson, 1986) In addition to the findings of Bracker and Pearson, Schwenk and Shrader conducted a meta-analysis whereby they identified the presence of moderating variables on the effect of strategic planning on performance in small firms. (Schwenk & Shrader, 1993)

The relation between planning and organizational performance has been subject for research for more than 35 years (Ramanujam & Venkatraman, 1987). This relationship is investigated by two separate streams of research. One stream has investigated the relationship between performance and the planning process and the other stream has investigated the relationship between performance and the content of plans.

Within the diversity of characteristics/components of the construct planning consists of, there are two dimensions how they can be divided. According to Gruber, the benefits of planning depend on the amount of planning and the focus (Gruber, 2007) Therefore this study will focus on the structure of the planning process and on the content of the planning.

This is affiliated with the research were Aard Groen en Jeroen Kraaijenbrink have found that the specificity of plans on the short term and the number of issues the entrepreneurs are concerned with are indications for better future performance. (Groen & Kraaijenbrink, 2010) Whereas the specificity of plans on the short term can be seen as a more sophisticated content variable, the number of issues concerned with more as a sophistication as the structure variable. Because those two variables are not mutually exclusive for the two pillars whereupon planning is build they have been completed by more variables which indicate a more sophisticated structure or content of the planning.

For this study the level of planning sophistication must be determined for each entrepreneur in order to be able to compare the differences planning sophistication can have in relation with the judged

performance. The level of sophistication can vary on content related issues, but can also vary over structure related issues or both on structure and content related issues. This means that some of the sophistication in expression is related to the explication about the subjects within their diaries and on the other hand the sophistication in expression is aimed at the structure of the planning, the way how things are being carried out.

In specific settings, entrepreneurs are being followed or participate in incubator programs where they not started their venture yet, and thus having in mind to become an entrepreneur. In this phase the entrepreneurs plan already their new business, but the actual business is not yet existing. This is called pre-start up planning. Pre-start up planning can range from essentially no planning to the development of very comprehensive and detailed, long-term plans (Lindsay & Rue, 1980).

Bracker and Pearson (1986), for example, employed a four-level classification: (1) unstructured plans, (2) intuitive plans, (3) structured operational plans, and (4) structured strategic plans. Similarly, Shrader et al. (1989) used a three-level classification, ranging from no plans to comprehensive plans coupled with considerable analysis and control procedures, where each higher level of planning encompassed the lower ones. Also Rue and Ibrahim (1998) classify planning into three categories: (1) no written plans (2) moderately sophisticated planning and (3) Sophisticated planning.

Regarding the available data and the method collection some adjustments has to be made regarding the current theoretical formats of planning characteristics/components A slightly adapted version of the classification by Rue and Ibrahim (1998) will be used for this study whereas the level of planning sophistication has been divided in to two levels of classification instead of three. Because one of the presented levels by Rue and Ibrahim implied that there is no written data, whereas the data used in this study depends on the obligatory written diaries the classification presented below will use only two levels of planning sophistication because there is always some information about their plans, . To make it more distinctive it is divided into "Low sophistication" and "High Sophistication",

1. **Low sophistication; Little to no sophisticated planning, both on structure and on content**
2. **High sophistication; The presence of sophisticated structure and the presence of sophisticated content.**

When the entrepreneurs are analyzed based on the classification above, the relationship between planning sophistication and future performance can be explicated.

### Low sophistication

When an entrepreneur is being classified as using a “low sophisticated planning”, the entrepreneur is probably using other techniques than a sophisticated planning in order to obtain his or her goals. This ‘unplanned’ behavior could be caused by the use of other perspectives than formal planning, like

improvisation, whereas future steps are less detailed or other perspectives how to cope with the future, e.g. bricolage.

### High sophistication

When an entrepreneur is being classified as using a "high sophisticated planning" the entrepreneur is using as well on the content side, very detailed and sophisticated described actions e.g. over the different themes an entrepreneur must think about and act on, and also being precise in taking steps along regarding the structure of his/her planning behavior.

#### 2.2.1 Components of planning sophistication

To be able to classify entrepreneurs in to more low sophisticated and high sophisticated planners, the concept of planning sophistication must be put out in to a more concrete concept. The (most important) indicators which determine the level of sophistication which are found in literature are explicated in the tables below.

According to Yusuf & Nyomori (Yusuf & Nyomori, 2002), which extracted 25 elements (see table 1) described as planning characteristics from multiple studies (Veliyath & Shortell, 1993) (Kargar & Parnell, 1996) and (Ramanujam & Venkatraman, Planning systems characteristics and planning effectiveness, 1987). This multidimensional view of planning consists of the variables:

Customer services	Personnel function
Efficiency of operations processes	Operations/Manufacturing function
Attracting and retaining high quality staff	Research & Development
Analysis of financial strengths and weaknesses	Use of financial models
Analysis of past performance	Use of marketing models e.g. BCG Matrix
Identifying and evaluating new market opportunities	Using project management techniques
Identifying new sales opportunities	Use forecasting and trend analysis
Analysis of competitors	Involvement of owner of manager
Studying supplier trends	Involv. of line managers in strategic planning
Studying technological trends	Involv. of non-managerial employees
Studying customer preferences	Involv. of outside experts in strategic planning
Marketing function	Involv. of friends who are also in business
Finance function	

**Table 1: planning characteristics according to Yusuf & Nyomori**

A content analysis of literature (Rue L. , 1973) and (Lindsay, Boulton, Franklin, & Rue, 1982) on planning characteristics by (Bracker & Pearson, 1986) resulted in eight components of planning (see table 2) within the different levels of planning sophistication.

Objective setting	Financial projections
Environmental analysis	Functional budgets
SWOT analysis	Operating performance measures
Strategy formulation	Control and corrective procedures

**Table 2: planning characteristics according to Rue et al**

Also Groen and Kraaijenbrink, from which this study is derived, found several patterns in the data (same data source for this study, but less extended) when they searched for indicators which could estimate the likeliness of future performance of entrepreneurs. The most important findings are shown in table 3:

Number of Issues Concerned with Specificity of Plans	Scope of Parties Referred to
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**Table 3: planning characteristics according to Groen & Kraaijenbrink**

The first two findings of the study by Groen and Kraaijenbrink are obvious planning related, in these patterns lies a link with the level of sophistication entrepreneurs could use when planning their actions. The third pattern is not in itself a related variable towards planning sophistication. It says more about the way the entrepreneur is gathering knowledge and information and that he/she is taking the expertise from outsiders into account when starting up his/her first new venture. This last pattern was found due to the angle of incidence by the study of (Groen & Kraaijenbrink, 2010), but for this study it will not be used as a separate characteristic, but as part of the content stream of research.

Gruber (2007) investigated the amount of time spent on the relation between marketing planning and venture performance. In his research he focused on the planning process and the level of effort devoted to various planning tasks. Gruber (2007) concluded that it is not the time spent on planning that enhance future performance, but the sophistication of the specific activities (such as gathering information and planning of how to get crucial customers) have beneficial effects on future performance. Therefore the effort that entrepreneurs put in describing their activities can be seen as an indicator for planning sophistication and is likely to be related to future performance.

According to strategy and action planning principles<sup>1</sup>, each planning has to consist of at least three major elements; (1) Describing which specific task will be conducted, (2) a notification when it will be done and (3) resource allocation has to be pointed out. This is in line with (Aram & Cowen, 1990) who mention that action planning is a process of defining issues, assigning tasks and goals and deadlines.

<sup>1</sup> <http://www.businessdictionary.com/definition/action-plan.html>, retrieved on 01-08-2012

## 2.2.2 Hypothesis development planning sophistication

As can be seen in the review about planning sophistication, the level of detail in planning differs over several components. Some are content related, others are structure related. As the hypothesis here is directed in favor of the planning sophistication – performance relation the next hypotheses are drawn:

The theory section started with a general overview about the relation between planning and performance. In that first section it has been described that the concept of planning is very extensive. Therefore the concept is exposed in several parts (planning sophistication and planning commitment). Although literature in general is very divided in the effect planning could have on performance. There are researchers who are in favor of the relation between planning and performance (e.g. (Jones, 1982) and (Schwenk & Shrader, 1993) there are also researchers who are not in favor of this relationship based on their findings (e.g. (Castrogiovanni, 1996).

### Hypothesis 1a:

*The more sophisticated planning in terms of structure and content, the better the entrepreneurs perform*

The hypotheses presented above assumes that planning sophistication as one construct has an effect on performance. As we have seen in the theory presented in the previous sections the construct of planning sophistication can be divided into two pillars; Content and structure. Therefore the next two hypotheses will treat the two streams separately.

As Yusuf & Nyomori (2002) already pointed out, the content of planning can be very diverse. This multidimensionality of planning, in other words, naming broad aspects of doing business that is important, can be an indicator for future performance. In line with the study of Groen and Kraaijenbrink (2010) the assumption is that specificity of plans can be an indicator for future performance. That is why the first hypothesis here is

### Hypothesis 1b:

*The more sophisticated planning is in terms of content, the better the entrepreneurs perform*

Besides the content side of planning, the second stream in planning sophistication research aims at the structure of the planning. As Gruber (2007) described in his research the process of planning is likely to have beneficial effects. Also Groen and Kraaijenbrink (2010) discovered in their study that the number of subjects concerned with at the same time could be an indicator for future performance. Whereas both studies are in favor of the relationship between planning sophistication structure and future performance the next hypothesis is drawn:

### Hypothesis 1c:

The more sophisticated planning is in terms of structure (process) is, the better the entrepreneurs perform

## **2.3 Planning commitment**

The other variable of interest for the relationship between planning sophistication and new venture performance here is planning commitment. Planning commitment implies the commitment regarding an earlier intended action planning. While stating a (sophisticated) planning on the one hand, does not directly imply that the planning is followed exactly. Therefore, in order to check if the planning sophistication actually resulted in improved performance, the commitment towards that planning should be established.

The commitment in the actual planning commitment can be divided in two categories. Entrepreneurs who refer to or carry out their actions which they stated in their plans and entrepreneurs who do not refer to or carry out the intended actions within the planning.

This variable is derived from the study of Bracker & Pearson (Bracker & Pearson, 1986) whereas they stated that one of the components of planning are the control and corrective procedures, For this study this variable is treated as an stand-alone variable because in this study sophistication of planning is being held as a stand-alone cause for performance. whereas the planning commitment is treated inter alia as a moderating component if it occurs and an independent effect on performance.

Entrepreneurship literature does not include much research about the commitment of planning regarding action planning or business plans. There are some researchers who state that the fact of having a planning or a business plan could have a positive effect on the performance on the company, regardless if that planning is followed or not. (Delmar & Shane, 2003) But from other research fields, like pharmacy for instance, there is much more information available about the relationship between planning concerning a type of therapy and the adherence towards that therapy. Also in the medical research, several studies are conducted into the relation between adherence towards earlier stated action plans and the improvement of desired results. For instance in the study of Bischoff et al. where the adherence towards action planning in the recovery of COPD was point of interest in their research. The conclusion of their study was that patients who adhered the planning more precise showed better results and faster recovery time (Bischoff, et al., 2010). Although this example does not 1:1 show that entrepreneurs who follow their own stated action planning perform better, it only shows that results can be improved when the stated action planning is followed. The line of reasoning for this argument here is that, when people think about their steps and plan, and commit to that plan, they can achieve better results.

Something that can partly be compared is the control of a project within the project management literature. Within the project management literature, monitoring the project on its progress and on the compliance with appointments in the progress are more common in that field of research. Something as monitoring variance within the progress of a project, or complete analysis systems (Maheshwari & Credle, 2010)

In essence planning commitment here means that when an entrepreneur has stated a planning, it is not wrong or good to keep up with the planning exactly. But when an entrepreneur has stated a planning and he/she is not referring to it at all at a later moment. This could mean that although he or she made a planning, they did not follow the planning with an, for now, unknown effect on the venture performance. Therefore this variable is here of interest. To make it more distinctive an entrepreneur follows its planning, or he/she is not following his/her planning, which necessary leads to a distribution of two groups.

Because the entrepreneurs can be divided in to two groups. In order to make the comparison more clear. The classification here is:

1. Low planning commitment; Entrepreneur does not commit him-/herself to their planning
2. High planning commitment; Entrepreneur does commit him/herself to their planning

When the entrepreneurs are categorized based on the analysis they will be classified either as working with high planning commitment or as working with low planning commitment. Both classification will be elaborated here below.

#### Low planning commitment

When the entrepreneurs are classified within the group of low planning commitment, they act predominantly different with respect to their plans for the coming weeks. Other results are achieved and new subjects are mentioned, which were not announced.

#### High planning commitment

When entrepreneurs are classified within the group of high planning commitment, They act predominantly according their early stated planning, the variance between their planning and their actual results is low because they comply their actions to their planning highly.

As been stated in the paragraph above, making a planning is not the same as exactly carry out the steps that were planned. Although the focus for this study is on the relationship between planning sophistication and performance, the concept of planning commitment can clarify too which extent making a planning, and stick to that planning, can help entrepreneur focus on their goals and achieve the wanted results.

### 2.3.1 Hypothesis development planning commitment

Although theory is not very extensive about planning commitment, it is mentioned by Bracker and Pearson (1986) that control and corrective procedures are part of the planning process. In order to implement these control and corrective procedures it has to be known if the entrepreneurs commit them self to their earlier stated planning. This is supported by the arguments of some project management studies (e.g. (Maheshwari & Credle, 2010) who describe that within the project management literature monitoring progress is an important part of the project management in order to obtain goals and keep making progress. Based on the theory that planning commitment is part of the planning process in order to monitor progress the relation between planning commitment and planning performance is here of interest. Does it really contribute when someone is writing down actions and commit them self to that actions, and will it result in a better rated performance Despite of the level of sophistication of this planning. Therefore we expect a positive relationship between these variables and is the next hypothesis drawn:

#### Hypothesis 2:

Entrepreneurs who commit themselves to their planning perform better.

### 2.4 Hypothesis development planning sophistication and planning commitment

If we look at the theory about planning sophistication the general tendency about the sophistication of planning is that it is positive related to new venture performance, regardless if entrepreneurs commit themselves to their planning. If we look at the assumption that is derived from theory about planning commitment the tendency towards better future performance is also positive, regardless of the planning is sophisticated or not.

In the previous sections it was assumed that the commitment towards the entrepreneurs' planning has a positive effect, despite of the level of performance. It was also assumed that planning sophistication has a positive effect on performance. Therefore, it is for this study of interest how commitment has a positive moderating effect on planning sophistication in relation to performance.

In other words, people who are commit themselves to their planning and plan more sophisticated will perform better than those who do not commit themselves to their planning. Based on this assumption the following hypothesis is drawn.

#### Hypothesis 3:

Planning commitment has a positive moderating effect related to the level of planning sophistication on the level of likeliness of future performance



### 3. Method

In the method section the study approach is being elaborated. This section start with an overview of the research design. In this design the most important variables are drawn with their assumed relations. Also the context where the study has taken place is being discussed. In paragraph 3.2 the selection procedure and the sample are being discussed. This will clarify what the unit of analysis are and why those are chosen. In paragraph 3.3. The method of data collection and measurements are discussed. This paragraph will explain how the variables of interest are being collected and which approach is being used in measuring them. In paragraph 3.4 will be explained which statistical techniques are being performed and how the data is analyzed.

#### 3.1 Research design

From theory can be derived that as well as planning sophistication can have a effect on the level of performance, as well as the commitment towards that planning in relation to the level of performance. The causal model below of this study is a rendering of the assumptions how the research variables of interest are related. From the causal model the hypotheses are drawn and relations are theoretically underpinned.

In this model the level of planning sophistication is assumed to have a direct relation to the level of performance, whereas the direction of this assumption is positive. Within this relation the variable planning commitment is regarded to be the moderating variable on the actions that are planned and the actions that are actually conducted and achieved. This planning commitment could confirm or disconfirm the direct relation between planning sophistication and level of performance if that relationship is positive or negative. Also the assumption exist that planning commitment has a direct relation on the level of performance by entrepreneurs.

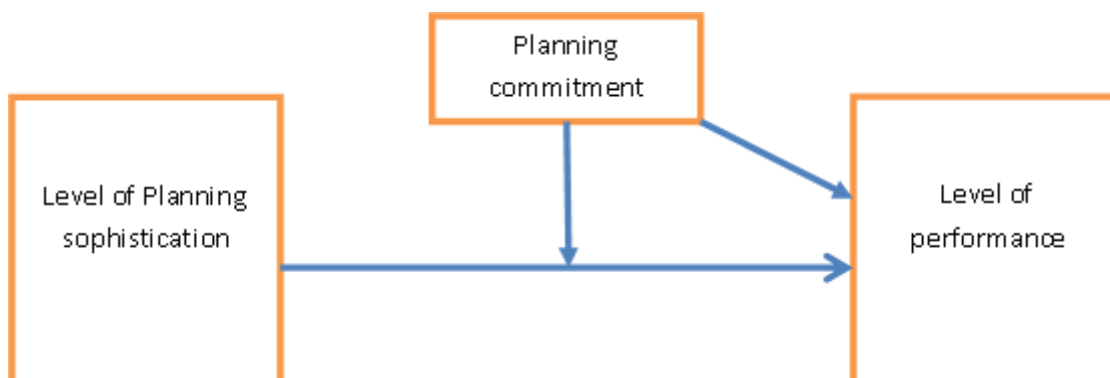


Figure 1: Assumed relation research variables

The research was carried out in a living lab setting called Venturelab. Venturelab Twente facilitate the business development of new ventures and to accelerate growth for established ventures. Venturelab Twente offers a business development program for the length of one year to help entrepreneurs in their early stages of business to start up in the right direction, and helps established ventures to growth further and faster.

### 3.2 Selection and sample

The way of selection for this study was by means of self selecting by people who entered the business development program at Venturelab . This means that the people who are belonging to the population are participants of this business development program. Some participants were purged from the population to enhance data quality. This meant that every self selected participants needed to have more than 9 entries of filled diaries within the program. Every participant with less than 10 entries was deselected for further investigation. Also it was selected that the diaries covering a period from January 2010 - January 2012 were taken into account. This choice has been made in order to cover a period that is long enough that it contains enough entrepreneurs for a good representation and enough data to draw valid conclusions about.

From the selection a sample is being distracted up to 3000 entries within the given period of weekly diaries of participants with an minimum of 10 entries. The participants were selected based on the first letter of their first name. This is done because it is not assumable that the first letter of their first name have any correlation about specific characteristics over the habits of an entrepreneur and thus representing the population.

The sampled participants of the Venturelab Twente business development program are entrepreneurs who varying from those with only a vague concept in mind and those looking for support to accelerate and stimulate their business development. When people creating organizations they generally are called entrepreneurs (Vesper, 1982). In his study towards the description of the phenomena entrepreneurship Gartner (1988) pointed out that the phenomena entrepreneurship is not who one is, but how someone does something. This point of view focuses more on the process by which new organizations are created and the behavior of the people who create organizations. The people who participate in the business development program can be seen as entrepreneurs. For this study the behavior of action planning by the entrepreneurs is here of focus to investigate if the planning as behavior is related to the eventual performance of the venture. From the selected participants.

### **3.3 Data collection and Measurement**

In this section the approach will be discussed how the data is collected and how the variables of interest will be measured. This section will start with the explication of the data collection and measurement procedures of the variable planning sophistication. Then the data collection and measurements procedures about planning commitment and performance will be explained. The last section of this paragraph will elaborate on the statistical data analysis is being conducted.

#### **3.3.1 How planning sophistication is measured:**

Planning sophistication is measured by the collection of outcomes of a weekly diary which is obligatory for each entrepreneur who participates in the business development support program. The data that will be used regarding the characteristics of planning sophistication will be extracted from the weekly diaries. The diary that each entrepreneur has to fill in can be found in the online-environment of Venturelab, where every entrepreneur has access to. The structure for the content of the diary is directed by four questions which have to be answered. The questions for this diary are as follows.

- 1) What were the most important things that you learned in the past week?
- 2) What results have you made in the past week?
- 3) What issues have you been most concerned with in the past week?
- 4) What are the next steps that you are going to take in the coming weeks?

This way of gathering data has been used because some of the entrepreneurs are in their pre-start-up phase, where more objective data, like financial numbers, are lacking. The aim of the data gathering method is that people write down their thoughts about their progress and plans for the coming period. The time horizon where the questions are referring to are relative short. That means that any conclusion of this study is concerns the short term planning.

The level of sophistication is measured by means of a coding scheme (see appendix 1) where the conversion has been made between the raw data on the one hand and the indicators of the sophistication planning construct on the other hand. The classification regarding sophistication is being measured according the properties mentioned below derived from the literature review.

The establishment of table 4 has derived from multiple studies towards the identification of planning sophistication and if possible also aimed at entrepreneurs. The table has been composed and adjusted to fit the conditions of the target population and the setting where this study takes place best. In the method section each aspect of planning sophistication is presented with a reference to theory and the importance for this study will be highlighted.

The content related indicators are abbreviated into the categories below because they give a better overview of the large amount of indicators which are presented by the former researcher who studied this topic.

This results in an table which consists of the merged theoretical aspects of planning sophistication, see table 4:

<i>Planning sophistication</i>	
<b>Content (what)</b>	<b>Structure (how)</b>
Variety of subjects	Number of subjects
Concreteness	Number of characters

**Table 4: Planning sophistication variables**

### **Planning sophistication content indicators**

The table above consist of all the indicators planning sophistication consists of, in this section the content indicators will be elaborated; Variety of subjects and concreteness

#### Variety of Subjects

For this indicator the level of analysis has been brought at a higher level with regard to the indicators Yusuf & Nyomori (2002) have presented due to the research setting for this study is depended on the weekly diaries whereas the entrepreneurs were free to put down whatever they needed to mention. A pre-selection of the data has pointed out that an extracted set of indicators will enhance the possibility of comparison between the entrepreneurs who participate in the business development program. The content were the subjects are about are presented in the table below (see table 5)

<i>subjects</i>	<i>Referring to:</i>	<i>Examples</i>
Extern contact	external contacts within his/her answer	international *** meeting in ***
Venturelab	the Venturelab program activities	Aankomende week met coach en *** een brainstormsessie
Business - General	normal business activities and issues	first things first: regular business
- HR	Human resource issues	Gesprek met senior collega om zicht te krijgen op reden van demotivatie en kijken of we dit kunnen ombuigen.

- Finance	Financial aspects of business	Finish bookkeeping
- Marketing	Marketing issues	working further on the marketing plan
- Strategy	strategic choices and direction issues	put more focus on strategic steps, strict planning an action.
- Innovation	innovative and development issues	extra mensen zoeken voor het bouwen van het prototype, testgroep benaderen. <i>(this entry was also rated for HR issues and extern contacts)</i>
Personal	personal issues	Holiday
Planning	planning issues	planning activities for 2011 and moving to new location.

**Table 5: Variety of Subjects indicators**

### Concreteness

The first indicator of planning content sophistication is the concreteness of plans per subject. (see table 6) Derived from the study of Groen & Kraaijenbrink (2010) there seem to be a relation between entrepreneurs mentioning vague general plans and entrepreneurs who mentioned more specific and detailed plans. The assumption here is, based on the theory of planning sophistication, that when an entrepreneur is mentioning more concrete and specific actions about what to do that this is classified as sophisticated. When an entrepreneur describes more general and less concrete plans it will be classified as less sophisticated. Whereas the level of concreteness is the indicator for the concreteness this is the indicator for this study to measure.

<b>Concreteness</b>	<b>Examples</b>
Level of concreteness per entry	
0 = No entry	? or .... or <empty>
1 = Vague concepts	Keep them warm
2 = The concept/subjects are very comprehensive	Plan uitwerken
3 = Concrete subjects without time, place or resource indicators	Prepare panel presentation
4 = Concrete subjects with time, place or resource indicators	Plan maken met de coach voor het vervolgtraject en planning voor verandering van mijn bedrijf.

5 = Concrete subjects with time and place and resource indicators	Tomorrow a meeting with the CEO of a lab. in *** working together with the *** space medicine. This lab can make the right *** for my new nat.med.
---	--

**Table 6: Concreteness indicators**

### **Planning sophistication structure indicators**

#### Number of subjects mentioned per entry

Working on a project like starting a new venture brings a lot of issues to think about. The way how people cope with this overload of information, depends on the way they treat the issues either in a sequential way, one after another, or parallel, which means more than one subject at the same time. The judgment about what is one subject or what are more than one subjects is reviewed based on. One sentence with a clear stated action: 1 Subjects. One sentence with a clear stated action, whereas the next sentence is referring to the action in the first sentence is also reviewed as 1 subject. If an entrepreneurs is mentioning, e.g. more than one appointment in his sentence(e.g. three calls), this is reviewed as 3 subjects. When an entrepreneur is writing down more than one of those combinations above, the total number of subjects per entry will be added together.

Accordingly to Groen & Kraaijenbrink (Groen & Kraaijenbrink, 2010) the number of issues concerned with could be an indicator for successful entrepreneurs.

#### Number of characters per subject

The effort entrepreneurs put in writing down their plans could point out that entrepreneurs are unstructured or structured in their way of planning their activities. Depending on the sophistication of their plans or the demand for more planning activity. By measuring the amount of characters per subject the volume of input can be representative for the level of sophistication.

### **3.3.2 How planning commitment is measured**

#### Planning commitment

Planning commitment is measured based on the logic of following up earlier stated actions the entrepreneur has him- or herself committed to. The same written diaries as been used for the collection of information about planning sophistication

The appearance of planning commitment will depend on the answers the entrepreneurs give on the questions in their weekly diary, especially between the last question and the second question, where the entrepreneurs write down what their accomplished results are and what will be their next steps. These answers can be compared between past week mentioned next steps, and the upcoming weeks obtained results.

Planning commitment will be used to check on the effect of the first variable, planning sophistication. Dependent on the level of planning sophistication this moderating variable will be used to verify if entrepreneurs really commit themselves to their intended planning.

Because the data collection method has an interval of one week per entrepreneur, the time span between planned actions and results will be kept for one the following week.

**Planning commitment indicators**

For the moderating variable planning commitment the number of indicators is limited to one. There, commitment has a distribution of appearance or lack of commitment. Therefore the following indicators will be explained:

The indicator for planning commitment for this study is the presence of any referring/feedback to earlier stated actions. This comparability check can be made to verify if any intended actions (Question 2 of the weekly diary) are referred in the diaries after the week the actions should be undertaken.(Question 4 for upcoming weeks). The first step for this indicator is the check if an entrepreneur is referring to earlier stated actions. The second step is to categorize to which extent the entrepreneur is mentioning earlier stated actions. In the first place I have coded the variable in to 7 different levels of planning commitment. (see table 7)

For planned actions and planned results the content of the results corresponds with the content of the planned actions. The same counts for unplanned results, unplanned actions. With the help of this indicator unplanned behavior could be exposed or the imprecision of planning. This is also related to the sophistication of the planning and execution.

<i><b>Planning commitment</b></i>
Mentioning earlier stated action
0 = Not planned, no results
1 = Planned, no results
2 = Not planned, however results
3 = Planned steps, other results
4 = Planned steps , exact results, however less than planned
5 = Planned steps, exact results
6 = Planned steps, exact results, however more than planned

**Table 7: Planning commitment indicators**

This turned out not to be a good scale distribution because it showed little to less correlation with the distribution of performance-overall. I have scaled this distribution down in to two categories (see table 8), namely planning commitment and the lack of planning commitment. This turned out to represent a better measure for planning commitment in relation to performance-overall and therefore a better construct validity Therefore the distribution of values is brought back from 7 to 2. Namely Yes or no.

If the answer is YES, and the entrepreneur is referring to earlier stated actions some more information  
 If the answer is NO than the entrepreneur is not referring to his earlier made plans.

<i>Planning commitment Yes or no</i>	
Do results correspond with plans made	Corresponding with:
0 = No	Codes 0-3 from planning commitment
1 = Yes	Codes 4-6 from planning commitment

**Table 8: Planning commitment Yes/No**

For analysis the variable planning commitment is than converted into two categories, namely results that do not correspond with the plans made, and results that correspond with the plans made. This binary distribution expose the entrepreneurs who commit their selves to their plans, in contrast with those who achieve other results as planned. As a results of this simplified distribution the following indicators are used



### 3.3.3 How performance is measured:

Performance is measured based on a judgment of a panel which consist of two experts. The panel judges the aspiring entrepreneur with the goal to predict the likeliness the new venture will become a success. By means of a monthly presentation the entrepreneurs have to present their progress and plans for the future. Goal for the entrepreneur is to convince the panel to get enthusiastic about their product/services and their ability to become a successful entrepreneur.

The panelist are aware of the fact that the participants of the business support program are all novice entrepreneurs and were asked to keep this fact in mind and take this in to account when they assess the entrepreneurs and their ventures. The panels' evaluation is based on Frey's (Frei, 2004) (Frei, 2006) research on how investors assess new ventures in practice. Frei developed a rating scheme on how investors asses new entrepreneurs and new ventures This rating scheme is included with four groups of criteria, namely: 1. The entrepreneur or the entrepreneurial team, the individual members, composition of the team, and if present, also the quality of the board of directors. 2. The business, quality and potential of the product or service, the business model, the future pipeline and partnerships. 3. The technology and market: industry attractiveness, stage of technology and intellectual property. 4. The presentation, timeless, clarity, professionalism and convincingness of presentation, responsiveness to questions.

For each of the criteria within the groups the rating scheme consists of Likert-type items ranging from 1 (strongly disagree) to 6 (strongly agree). In total, there are 45 items which have to be scored according to the likert-type distribution of values.

In order to create a variable which represents the average performance for this study is used an overall performance score on each of the entrepreneurs based on multiple expert panel reviews. Afterwards I have divided the rating scheme in sections whereas each section could be analyzed on their particular category of rating by the expert panel. Because the variables showed marginal effects based on the overall judgment by the expert panel, the judgment of the expert panel has been cut into pieces, corresponding with the sections the rating scheme consists of. These are: Management Team, Individual Members, Directors/scientific board, the product, the business model, industry, intellectual property, stage of technology, technological partnerships/alliances, Future innovation, and the presentation.

The rating scheme which is used by the expert panel for the Venturelab expert panel presentation can be found in Appendix 2

In most other studies, performance is measured based on growth or financial results, e.g. (Schwenk & Shrader, 1993) Whereas previous researchers suggested that performance should be determined using

both subjective and objective criteria (Ramanujam, Venkatraman, & Camillus, 1986a) (Ramanujam, Venkatraman, & Camillus, 1986b) and (Tosi & Gomez-Mejia, 1994) recommend that performance should be measured with both financial and non-financial criteria, employing objective and subjective data because multiple measures allow comparisons across criteria. As in this situation financial data is lacking, due to the premature phase the new venture is in. For this study it is chosen to stay with the model of Frei (2004) in evaluating the progress and likeliness of future performance

### **3.4 Data-Analysis**

For this study the program SPSS is being used to process the data and carry out statistical analyses. The analyses that has been carried out are in the first place Bivariate correlation among all the variables in order to see if and how much they correlate mutually. This correlation shows in an overview the correlation and possible appearance of significance of that correlation. Second step is that based on the hypotheses the relations between the variables of interest are being tested on linear causality. This is carried out by means of Multiple linear regression analysis. Multiple regression analysis takes multiple independent variables together in relation with a dependent variable in order to test if there is some regression between the dependent and independent variables. The steps in data analysis are also explicated in the analysis section.

## 4. Results

In this section the data as result of the steps described in the method section will be discussed in more detail to explicate the way how the data is established and how it has to be interpreted.

Each diary from every entrepreneur was coded on several variables of interest. Whereas e.g. the number of characters could be calculated easily by Excel, the level of concreteness needed the judgment and valuation by the researcher.

In the analysis of the explored data the cases will be compared with the coded indicators of planning sophistication, planning commitment and eventually with performance.

The analysis will follow an equal order as the literature review.

The effect planning sophistication and planning commitment have on the future performance of the entrepreneurs who participate in the business development program Venturelab is offering will be compared with the reports of an experts panel who judges the progress of each entrepreneur. They give a value judgment towards the likeliness to future performance. This parameter will be used to compare the, in likeliness of becoming, more successful entrepreneurs with the, by judgment of the expert panel less potential successful entrepreneurs. From now on abbreviated as performance.

First, based on the correlation table (See table 9 on the next page) the first step is to see how all the variables are mutually correlated. Also the interpretation of the correlation table will help further analysis in order to explain or investigate correlations which are exposed due to the correlation table. See table As can be seen in the correlation table in general the correlation are low and most of the significance levels are not at the 95 or 99% confidence interval. This means that the statistical conclusion for these variables about their correlation is not that strong. Although some correlation are shown and give enough reason for further investigation.

Paragraph 4.1 of this analysis shows how planning sophistication is related to future performance.

Then in paragraph 4.2 and 4.3 as described in the theory and method section the construct of planning sophistication can be divided in to two streams. One is focusing on the content of the planning (§4.2) and the other is focusing on the structure of the planning sophistication (§4.3). For this study both streams will be analyzed separately in relation to the variable performance-overall.

In paragraph 4.4 the effect planning commitment has on performance will be measured in order to see if planning commitment has a direct effect on performance. Then, in paragraph 4.5 the analysis will consist of measuring the relationship between planning sophistication and performance with the moderating effect of planning commitment. The last paragraph, paragraph 4.6, will treat some interesting relations that have been noticed during the analyzing procedure.

Correlations*															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Performance - Overall	1 61														
2 Number of Characters /subjects	,005 ,972 61														
3 Number of Subjects	,099 ,446 61	,374** ,000 98													
4 Concreteness	,135 ,300 61	,355** ,000 98	,745 ,000 98												
5 PSCVOS	,098 ,452 61	,413** ,000 98	,834 ,000 98	,701 ,000 98											
6 Planning commitment - Yes/No	,262 ,042 61	,187 ,000 98	,587 ,000 98	,512 ,000 98	,632 ,000 98										
7 Extern	,150 ,248 61	,350 ,000 98	,582 ,000 98	,560 ,000 98	,543 ,000 98	,489 ,000 98									
8 Venturelab	-,213 ,100 61	,342** ,000 98	,309 ,002 98	,341 ,001 98	,407 ,000 98	,024 ,815 98	,030 ,771 98								
9 Business General	-,011 ,931 61	-,010 ,920 98	,277 ,006 98	,205 ,042 98	,418 ,000 98	,307 ,002 98	-,011 ,913 98	-,067 ,515 98							
10 Business Human Resource	,189 ,145 61	,122 ,230 98	,277 ,006 98	,217 ,032 98	,292 ,004 98	,321 ,001 98	,098 ,338 98	-,039 ,700 98	,047 ,647 98						
11 Business Finance	,220 ,088 61	,260** ,010 98	,442 ,000 98	,316 ,002 98	,422 ,000 98	,205 ,043 98	,293 ,003 98	,022 ,828 98	,162 ,111 98	-,004 ,971 98					
12 Business Marketing	-,070 ,591 61	-,011 ,917 98	,154 ,130 98	,083 ,418 98	,238 ,018 98	,156 ,125 98	-,045 ,660 98	-,023 ,823 98	-,143 ,159 98	-,048 ,638 98	-,056 ,586 98				
13 Business Strategy	-,042 ,749 61	,125 ,220 98	-,019 ,852 98	,002 ,983 98	,141 ,166 98	,075 ,463 98	-,116 ,257 98	,094 ,356 98	-,094 ,356 98	-,025 ,806 98	-,047 ,648 98	,164 ,106 98			
14 Business Innovation	,022 ,869 61	-,026 ,798 98	,113 ,270 98	,072 ,480 98	,276 ,006 98	,246 ,014 98	,003 ,973 98	-,071 ,489 98	,078 ,443 98	,128 ,210 98	-,096 ,349 98	,019 ,853 98	,276 ,006 98		
15 Personal	,116 ,372 61	,155 ,127 98	,396 ,000 98	,272 ,007 98	,463 ,000 98	,171 ,093 98	,061 ,552 98	,298 ,003 98	-,023 ,824 98	,026 ,802 98	,007 ,947 98	,195 ,055 98	,051 ,617 98	,090 ,378 98	
16 Planning	-,086 ,510 61	-,015 ,887 98	,131 ,197 98	,065 ,524 98	,039 ,700 98	,071 ,488 98	-,109 ,284 98	,010 ,923 98	-,001 ,993 98	,148 ,147 98	-,099 ,332 98	,122 ,230 98	,158 ,121 98	,139 ,172 98	-,054 ,595 98

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

Table 9: Correlation table all variables

#### 4.1 Analysis of planning sophistication in relation to performance

In this analysis I will put both streams of planning sophistication (structure and content) together to see how these together relate to performance. Therefore I use the independent variables: Variety of subjects, concreteness, number of subjects and number of characters per subject, and the dependent variable performance-overall. The four used independent variables together form the construct of planning sophistication. First I will give an overview by presenting a correlation table to see how the variables are related mutually.

As can be seen from the correlation table above (table 9) the majority of the variables does not significantly correlate to the dependent variable performance. But mutually the four indicators of planning sophistication show more coherency among each other. This can be said based upon the Pearson correlation coefficients about Number of Characters per subjects and Number of Subjects ( $r=0.374 \alpha=0.00$ ), number of characters per subject and PSCVOS ( $r=0.413 \alpha=0.00$ ) number of characters per subject and concreteness ( $r=0.355 \alpha=0.00$ ) number of subjects and PSCVOS ( $r=0.0834 \alpha=0.000$ ) number of subjects and concreteness ( $r=0.745 \alpha=0.00$ ) and PSCVOS and Concreteness ( $r=0.701$  and  $\alpha=0.00$ )

Although it is interesting that the indicators mutually are strong correlated, which I will refer to later, the question for this study remains how planning sophisticated is related to new venture performance. Therefore I will look at the regression between these independent variables ( Number of characters per subject, number of subjects, PSCVOS and Concreteness) in relation with the dependent variable (Performance-Overall) With method Enter.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,143 <sup>a</sup>	,021	-,049	,61776

a. Predictors: (Constant), Number of characters per Subject, Concreteness, PSCVOS, Number of Subjects

Table 10: Summary multiple regression PS-Performance

ANOVA<sup>a</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	,448	4	,112	,293	,881 <sup>b</sup>
Residual	21,371	56	,382		
Total	21,819	60			

a. Dependent Variable: Performance - Overall

b. Predictors: (Constant), Number of characters per Subject, Concreteness, PSCVOS, Number of Subjects

Table 11: ANOVA PS-Performance

Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2,912	,375		7,762	,000
Number of characters per Subject	-,001	,003	-,050	-,342	,734
Number of Subjects	-,025	,204	-,037	-,125	,901
PSCVOS	,073	,348	,058	,211	,834
Concreteness	,129	,183	,139	,705	,484

a. Dependent Variable: Performance - Overall

Table 12: Coefficients PS-Performance

As expected the composite effect of the individual independent variables shows us a low regression coefficient, with  $r=.0143$  and  $r$  square = 0.021 the effect is negligible (See table 10) Also the effect is not significant (See table 11 ) and a regression comparison cannot be presented due to the fact that none of the individual independent variables are not significant (Table 12).

#### 4.2 Analysis of planning sophistication content in relation to performance

In order to measure the effect planning sophistication content has on performance-overall I know from the method section that the construct planning sophistication content consist of two variables. The variety of subjects and the concreteness of the answers in the diaries. For the variable concreteness one value per entry is coded, which gives a substantiated judgment about each entry and can directly be used with the correlation and regression. The other variable; variety of subjects consist of 10 different types of subjects/categories which the entrepreneurs could mention within their next steps. These are, Extern, Venturelab, Business (General, HR, Finance, Marketing, Strategy, Innovation), personal and innovation. In order to calculate this variable I have used the option Compute variable in SPSS. In the

numeric expression I selected and summed the 10 categories mentioned above. At function group I selected the option ALL and at Functions and Special variables I have selected the option MEAN. This resulted in a new variable which I called PSC VOS (planning sophistication content Variety of Subjects). The variable PSC VOS expresses the more variety of subject is used an entrepreneurs the higher the variable. Correlation with these variables can be found in the correlation table (Table 9)

As can be seen from the table above the three variables do not correlate very strong with performance. Because the significance level is larger than  $\alpha \geq 0.05$  in relation to the variable performance overall it can be said that the correlation presented can be . Although the relation per se is not of interest the two variables concreteness and pscvos correlate stronger. Even with the confidence interval at the 99% level the correlation can be explained with a Pearson correlation coefficient of 0.701. In theory a correlation can be labeled as strong with the Pearson correlation coefficient of 0.8 or higher.

In order to determine if there is a linear or causal relation between planning sophistication content and the performance-overall multiple linear regression will be carried out over these variables. Whereas pscvos and concreteness are the independent variables (regressors) and the variable performance-overall as the dependent variable.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,135 <sup>a</sup>	,018	-,016	,60770

a. Predictors: (Constant), Concreteness, PSCVOS

**Table 13: Summary Multiple regression PSC-Perf**

After processing the multiple regression analysis based on the variables explained above. The regression coefficient  $R=0,135$  based on the variables concreteness and pscvos in relation to performance-overall. (see table 13)

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,399	2	,200	,540	,585 <sup>b</sup>
	Residual	21,419	58	,369		
	Total	21,819	60			

a. Dependent Variable: Performance - Overall

b. Predictors: (Constant), PSCVOS, Concreteness

**Table 14: ANOVA PSC-Performance**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,900	,325		8,910	,000
	Concreteness	,115	,161	,124	,716	,477
	PSCVOS	,020	,221	,016	,091	,928

Table 15: Coefficients PSC-Performance

Interesting about the model summary (table 13) is that the  $R^2$  is 0.018 and the adjusted  $R^2$  is -0,016. I know from theory that this adjusted r square could be negative, but in this case the causal relation between planning sophistication content and performance overall can also be negative related, whereas the correlation coefficient is positive. Thus, in the cases of adjusted r square, the more planning is getting concreter and uses a more variety of subjects the performance level could decreased. (Adjusted for a smaller sample, which is not applicable here, but I noticed it)

### 4.3 Analysis of planning sophistication structure in relation to performance

In order to measure the effect planning sophistication structure has on performance-overall we know from the method section that planning sophistication consist of two variables. Namely; number of subjects and number of characters. In this analysis I will investigate if there is a relation between these two independent variables (Number of subjects and number of characters) and how they relate to the dependent variable (performance-overall)

To give an overview of the three variables and how they relate to each other I will first process them to correlation (table 9)

The question related to the research model was if there is a causal relation between planning sophistication structure and performance. Therefore I will carry out regression analysis on these variables using SPSS. The independent variables are Number of Characters per subjects and Number of subjects, whereas the dependent variable is Performance-overall. The method used is Enter. The regression summary is presented in table 16



**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,104 <sup>a</sup>	,011	-,023	,61001

a. Predictors: (Constant), Number of Subjects, Number of characters per Subject

**Table 16: Summary Multiple regression PSS-Performance****ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,236	2	,118	,317	,730 <sup>b</sup>
	Residual	21,583	58	,372		
	Total	21,819	60			

a. Dependent Variable: Performance - Overall

b. Predictors: (Constant), Number of Subjects, Number of characters per Subject

**Table 17: ANOVA PSS-Performance**

The independent variables are not significant for the effect they have on performance as can be concluded from the table 17 with a significant level  $\alpha > 0.05$  and a low F value.(regression/residual)

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,119	,245		12,718	,000
	Number of characters per Subject	-,001	,003	-,032	-,233	,817
	Number of Subjects	,076	,095	,110	,796	,430

a. Dependent Variable: Performance - Overall

**Table 18: Coefficients PSS-Performance**

From the regression outcome in table 16 can be concluded that the regression coefficient  $r=0.104$  and that the multiple determination coefficient  $r^2=0.011$ . This means that only 1,1% of the regression can be explained due to the independent variables number of characters and number of subjects. besides, the outcome is not significant

#### 4.4 Analysis of planning commitment in relation to performance

In order to analyze the possible linear regression between planning commitment and performance first step in this process is to draw a correlation table, see table 9.

This table shows that the variables of interest correlate with overall performance judgment with a Pearson correlation coefficient of 0,262 with a significance level of ,0,042, with a significance interval of 95%. This means that the appearance of planning commitment is significant in relation with overall performance whereas  $\alpha < 0.05$ . In this case, with planning commitment Yes/No as independent variable and performance-overall as dependent variable.

In order to determine if there is a linear or causal relation between planning commitment Yes/NO and performance-overall linear regression will be carried out over these variables. Whereas planning commitment Yes/No is the independent variable (regressor) and the dependent variable performance - overall. It is advised to first generate a scatter plot (see figure 3) to visualize any possible linear relation between these variables.

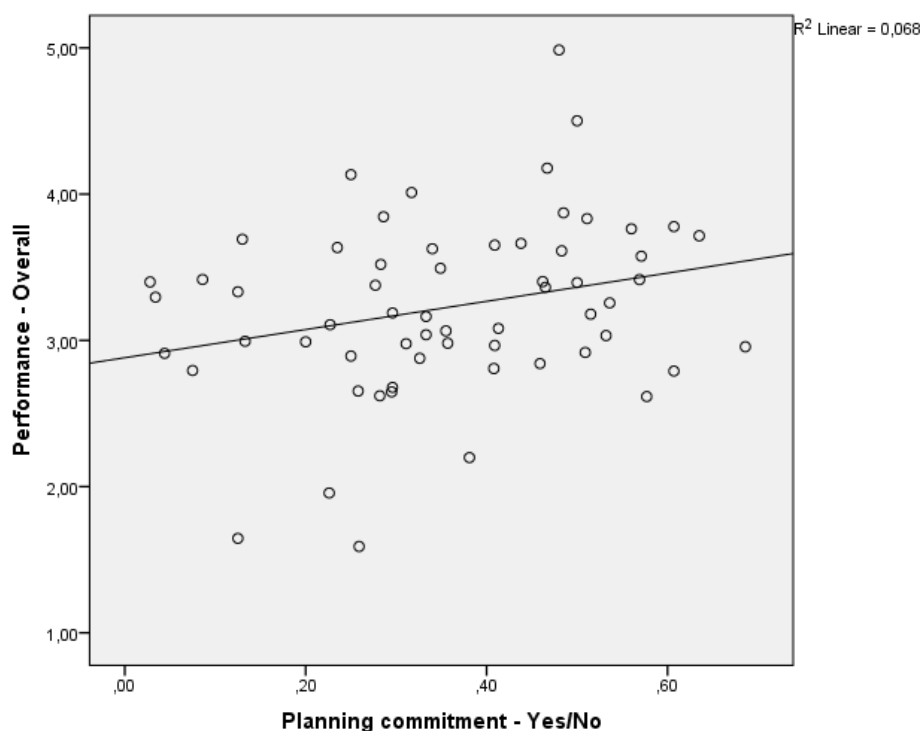


Figure 3: Scatter dot PC-performance

Within this scatter plot a fit line is drawn to visualize the linear correlation. Whereby  $r^2$  linear= 0.068

After drawing this scatter plot, linear regression will be done over the variables planning commitment Yes/No as independent variable and performance overall as dependent variable Using SPSS and based on the information above the following table is constructed.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,262 <sup>a</sup>	,068	,053	,58693

a. Predictors: (Constant), Planning commitment - Yes/No

**Table 19: Summary Multiple regression PC-Performance**

With a correlation coefficient (R) of 0,262 R square can be calculated (See table 19). This is done to square the correlation coefficient R This is  $R^2 = 0.068$ . This means that the relation between planning commitment Yes/No en performance - Overall can be explained for 6,8 % of the relation can be explained due to the effect planning commitment Yes/No has on performance-overall for the entrepreneurs in the business development program. This can be said with 95% confidence. (see table 19)

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,494	1	1,494	4,336	,042 <sup>b</sup>
	Residual	20,325	59	,344		
	Total	21,819	60			

a. Dependent Variable: Performance - Overall

b. Predictors: (Constant), Planning commitment - Yes/No

**Table 20: ANOVA PC-Performance**

Unfortunately there is much more unexplained variance (see table 20) and whereas the residue (1- $R^2$ ) cannot be explained due to the cause of planning commitment in relation to performance. This is  $1 - 6,8\% = 93,2\%$  unexplained variance. So the claim that the variance caused by the effect planning commitment has on future performance is 6,8% with 95% confidence This distribution resulted in the next regression to the likeliness of future performance:

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,882	,182		15,794	,000
	Planning commitment - Yes/No	,965	,463	,262	2,082	,042

a. Dependent Variable: Performance - Overall

**Table 21: Coefficients PC-Performance**

In order to draw an equation for this linear regression table 21 gives the required information. The regression equation for this regression can be displayed as  $Y=A + B * X$ , whereas Y is performance overall, A is the intercept (constant) 2.882 and the B is 0,965. B can be used as it is significant at the confidence level  $\alpha=<0.05$ .

$$\text{Performance} = 2.882 + 0,965 * \text{planning commitment}$$

#### 4.5 Analysis of planning sophistication in relation to performance with as moderating effect planning commitment

In order to see what the effect of planning commitment has on the relationship between planning sophistication and performance a regression analysis will be carried out. Therefore I use the independent variables Number of Subjects, Number of characters, PSCVOS and Concreteness to represent the construct planning sophistication and I use the dependent variable Performance-Overall. To calculate the effect with planning commitment as moderating effect I selected only those entrepreneur who score more than average on planning commitment. First I had to find out what the average is whereupon I would categorize them as high or low planning commitment. The average score on the variable planning commitment Yes/No = 0.034 as can be seen in table 22.

	N	Minimum	Maximum	Mean	Std. Deviation
Planning commitment - Yes/No	98	,00	,69	,3378	,15870
Valid N (listwise)	98				

**Table 22: Descriptive Statistics; i.a. Mean planning commitment**

I executed this selection procedure by using SPSS, tab Data, Select cases, and selected if condition is satisfied. The condition to be satisfied is higher than the average in the case I want to see how the high committed entrepreneurs score on their potential level of performance. The same regression analysis will be conducted, but than for the group who score less than average on planning commitment, to see

how they score on their potential level of performance. Both scores will be compared in order to claim if planning commitment has a moderating effect on planning sophistication in relation with the level of performance.

The first group that will be analyzed is the group of entrepreneurs who score higher than average on planning commitment. I selected the cases based on the condition that is satisfied if PC YES/NO  $\geq 0.3378$ . All tables representing this group are shown on the left in the next 3 rows of tables. The second group that will be analyzed is the group of entrepreneurs who score lower than average on planning commitment. When selecting these cases in SPSS based on DATA, select cases and select if condition is satisfied. Here the selection is made on PC Yes/NO  $\leq 0.3378$ . This group is represented in the next 3 rows of tables on the right side.

When applying multiple regression on these two sets of data the tables below are generated. If we look at the first two tables (Table 23 and table 24) we see a slightly better correlation coefficient (R) for the group who commit themselves to their planning than those who do not. R 0,317 (committed to planning) and R=0.79 (not committed to planning). When taken the R<sup>2</sup> from these to values we can calculate the explained variance by linear regression for the two sets of data. Here we can see that with planning commitment YES as moderating variable the variance can be explained for 10% in contrast with the variance for the group where there is no commitment to the planning the variance between planning sophistication and performance can be explained for 0.6%. Which is as close as nihil.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,317 <sup>a</sup>	,100	-,033	,56825

a. Predictors: (Constant), PSCVOS, Concreteness, Number of Characters, Number of Subjects

**Table 23: Model Summary Mult. Regression PC YES**

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,079 <sup>a</sup>	,006	-,159	,65415

a. Predictors: (Constant), PSCVOS, Concreteness, Number of Characters, Number of Subjects

**Table 24: Model Summary Mult. Regression PC NO**

When we focus on the ANOVA tables of both groups (table 26 and table 25) we see that both groups do not show significance on the confidence interval. That means that with a significance level of 0.564 for the group who commit themselves to their planning and a significance level of 0,997 we cannot say with enough confidence that the variance shown in the regression analysis are strong enough to conclude that the moderating effect of planning commitment enhances the relation of planning sophistication towards performance.

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	,973	4	,243	,754	,564 <sup>b</sup>
1 Residual	8,718	27	,323		
Total	9,692	31			

a. Dependent Variable: Performance - Overall  
b. Predictors: (Constant), PSCVOS, Concreteness, Number of Characters, Number of Subjects

Table 26: ANOVA PC YES

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	,065	4	,016	,038	,997 <sup>b</sup>
1 Residual	10,270	24	,428		
Total	10,335	28			

a. Dependent Variable: Performance - Overall  
b. Predictors: (Constant), PSCVOS, Concreteness, Number of Characters, Number of Subjects

Table 25: ANOVA PC NO

## 4.6 Other interesting relations

In the next section interesting relations are being explicated which fall behind the scope of this study or are not directly derived from a stated hypothesis.

### 4.6.1 Analysis of the planning indicators mutually

As seen in the correlation table (Table 9) at the analysis regarding planning sophistication (total construct) and performance-overall there is a strong relation between the independent variables. I will re-enumerate them.

Number of Characters per subjects and Number of Subjects ( $r=0.374$   $\alpha=0.00$ ), Number of Characters per Subject and PSCVOS ( $r=0.413$   $\alpha=0.00$ ) number of characters per subject and concreteness ( $r=0.355$   $\alpha=0.00$ ) number of subjects and PSCVOS ( $r=0.0834$   $\alpha=0.000$ ) number of subjects and concreteness ( $r=0.745$   $\alpha=0.00$ ) and PSCVOS and Concreteness ( $r=0.701$  and  $\alpha=0.00$ )

All correlations are strong and the significance level is  $\alpha=0.00$ .

The interpretation of these strong correlation is that these variables are strongly, and more important significantly, related to each other.. From theory they are deduced as the components of planning sophistication; the highly positive correlation between the variables says something about planning sophistication and thus the construct validity can be classified as high. That means that the more characters are being used per entry, the more subjects are being mentioned, the more variety of subjects exist and the more the answers are concrete, the more sophisticated the planning will be.

Besides the fact that the analysis above is saying something about the are strongly correlate to each other, for multiple regression analysis for the construct of planning sophistication this could increase the chance on multicollinearity.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2,912	,375		7,762	,000	
	Number of characters per Subject	-,001	,003	-,050	-,342	,734	,833
	Number of Subjects	-,025	,204	-,037	-,125	,901	,198
	PSCVOS	,073	,348	,058	,211	,834	,233
	Concreteness	,129	,183	,139	,705	,484	2,231

a. Dependent Variable: Performance - Overall

**Table 27: Testing for Multicollinearity between independent variables (planning sophistication)**

The table above shows in the last columns of the table the Tolerance value and the VIF value.

According to Field (2000) multicollinearity is a problem when the Tolerance value is smaller than 0,1 and a VIF value higher than 10. As can be seen in table 27. The values for each independent variables is not smaller than 0.1 for the Tolerance Value and not larger than 10 at the VIF value. This means that multicollinearity can be ruled out for this construct with respect to the regression analysis for the level of performance.

## 5. Discussion and conclusion

In this section the results will be discussed and conclusion are drawn. The paragraph will start with the key findings where the most important results are being discussed. The second paragraph will treat the limitation this study have on the ability to generalize and validity issues towards the data. Finally implications for further research are being explicated

### 5.1 Key Findings

The main question for this study was: *Does planning sophistication contribute towards better future performance in new venture start-ups when entrepreneurs commit themselves to their planning?*

This must be answered with careful conclusions. Although the statistical inferences have shown that there is some correlation and small regression between the variables. The statistical power of these conclusions is not that high that it can be said with confidence that the higher planning sophistication is, the higher the likeliness to future performance will be. What we can conclude based on this study is that the effect of planning commitment has as an indicator for the likeliness of future performance is with 95% confidence that this construct will explain the variance for 6,8%. This is in contrast with the study of Delmar & Shane (2003) that regardless of a planning is being followed up the relation is positive between planning and performance. This study showed that there is an effect of committing to the stated planning. The other independent variables seem to have unclear or low effects on the likeliness on future performance by the entrepreneurs. And thus we can conclude that, as well based on the sophistication of the content, as on the sophistication of the structure the planning is made, both pillars have no significant effect on the likeliness of future performance.

This study has shown that, within this setting, the construct of planning sophistication with planning commitment as a moderating variable is not the ideal measure for future performance. The results showed marginal improvement in the effect planning sophistication has on the likeliness of future performance with those who commit themselves to their planning with respect to those who did not commit themselves to that planning.

The overall conclusion that can be drawn is that when entrepreneurs plan next steps and commit themselves to that planning that it influences for 6,8% the effect on performance positively. Other causal claims are not significant or strong enough to draw valid conclusions about.

### 5.2 Limitations

Without decreasing the value of this study there have been made some tradeoffs in the process of choosing design and the approach to collect empirical data .The statistical power for this study is brought down due to a incomplete set of data about the level of performance, measured based upon the expert panel judgment. For this study 3000 entries were coded on 2 separate questions, resulting in 98 entrepreneurs. Because there was only rich data about 61 of these entrepreneurs about the



performance. The analysis could only be carried out over these 61 entrepreneurs. Because the unit of analysis for this study were the participants of the business development program the underlying data (at least 10 diaries, coded into 5 different variables of interest) were left outside the scope of this study. Nevertheless some internal trends were notified during the coding process.

The second limitation for this study is that a inverted U-shape regression relationship between planning sophistication and performance is not taken into consideration. Although it is assumable that this kind of relationship could occur that too much sophistication is not resulting in a good performance and lack of sophistication bad performance. But the assumption could be that the level of sophistication need to be balanced in order to result in good performance. The relation between planning sophistication and performance should show in this case an inverted U-shape (scatter plot) For this study the relation between planning sophistication and performance has been taken to be linear whereas according to theory e.g. Bracker & Pearson (1986) have shown that those who plan sophisticated outperform those who do not plan sophisticated, and Rue and Ibrahim (1998) who showed a linear effect of planning sophistication and performance, see figure 4

**ANOVA Results: Relationship Between Planning Sophistication and Growth Rate in Sales<sup>a</sup>**

Category	<i>n</i>	Mean (percent)	Standard Deviation (percent)
No Written Plans	101	3.18	1.58
Moderately Sophisticated Planning	89	3.94	1.71
Sophisticated Planning	63	3.97	1.85

<sup>a</sup>*F* = 6.999; *p* = 0.0011

**Figure 4: Linear effect planning sophistication on performance (Rue & Ibrahim, 1998)**

These two arguments are taken into consideration to assume that the more entrepreneurs plan sophisticated the better the performance, and thus linearity could be expected.

### 5.3 Implications for further research

Although the research planning of this study is not representative for most other studies I will recommend further researcher who will look in to the planning capabilities of the participants of the Venturelab development program to critically look, and at an early phase, at the present data set for all entrepreneurs. The data which was available about the performance of the entrepreneurs is at this point is not as rich as the data about the diary entries. This is something to take into account. This will enhance the usability of the coded work and the possibility to draw conclusions about the complete sample.

Next studies could look behind this data set or new data in order to discover latent trends or other variables which could influence the knowledge about, and the effect the level of planning sophistication has, in the relation to new venture performance.

One possible trend that is noticed by reading analyzing the diaries is that entrepreneurs seem to put more effort in their first entries than in their entries later on. Because the data per entrepreneurs for this study is aggregated in to one value per entrepreneur on the separate variables. Future research could be carried out and change the unit of analysis to the level of the diaries in order to study this possible trend in more detail.

For this study the constructs of planning sophistication and planning commitment were measured against a value judgment of an expert panel based on a rating scheme developed by Frei (2004) representing the likeliness of performance of the entrepreneurs who participated in the business development program. This kind of measuring performance could provide different results when other studies choose to measure the construct of performance on another scale or value. This could be, besides the rating scheme of the expert panel, more objective measures (like financial or growth values) which are likely to be present in the future when the entrepreneurs are a few years executing their business.

Another measure for performance could be the survival rates of entrepreneurs when they are a few year executing their business. As been said in the method section, for this study those values are lacking at this moment, but are likely to be present in the future.

## **5.4 Practical implications**

In practical sense this study shows that planning commitment is important for entrepreneurs who participate in a business development program or start their own business. When entrepreneurs commit themselves to their earlier stated actions their results will be positively improved. It also showed that the sophistication of planning does not directly contributes to improved performance.

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## 7. Appendices

In this section the appendices are added. These appendices are supportive to the main text and are in following order: First, the coding scheme which is used when coding the qualitative data into measurable items. The second appendix is the rating scheme which the expert panel used by rating the entrepreneurs on their performance

### 7.1 Appendix 1                      Coding scheme

The coding scheme is the exposition of the data in to measurable indicators of the variables of interest in order to draw conclusions about the qualitative data.

Because the research data used for this study is qualitative, the data has to be categorized and coded in to measurable 'items' in order to simplify the comparison of the data by the individual entrepreneurs of this study. And even within the data of each entrepreneur trends or striking issues can be found which can be of relevance in this study.

The codebook will be divided in to two separate sections. The first section is related to the first research question which is about planning sophistication. In this section planning sophistication will be exposed in to measurable "codes" to clarify all of its different levels of planning sophistication. The construct planning sophistication is divided into 2 separate sections; Planning sophistication content and planning sophistication structure. The second section will be related to the concept of planning commitment. Also in this section it will be exposed how it will be measured and how the concept is analyzed.

The allocation of doubtful data entries will be discussed and substantiated in this codebook to prevent future guidelines about the allocation of data which is, at first sight, not directly obvious to which category the data entry can be added

Before coding the data of the entrepreneurs a value check must be executed in order to make use of those data entries which are valuable enough to take into account for this study.

The data entries of the entrepreneur must consist of.

The code items will be numbered and leveled. Whereas the number is the main code and the levels, as it speaks almost for itself, the differentiation within the main code. E.g. The main code can be Spending time on personal development, whereas the levels within the code corresponds with personal development like, writing a POP or talking about learning.

The code-items will then be displayed in the following distribution:

## Code-items

- 1 Theoretical construct
- 1.1 Components
- 1.2 Indicators scale
- 1.3 Indicators

First the raw data of a pre-batch diaries is unstructured analyzed. The information within these diaries is read, whereas the information in question 4 (Next steps) and question 2 (results) of the diaries are of predominant importance.

### **Process of coding**

Coding is the process of categorizing the raw data in to measurable items. This process is time consuming and is subjective due to the fact that the researcher is liberated to judge from his own paradigm and freedom of interpretation towards the sometimes answers. In this study some of the variables which are measured can be set very objective (e.g. the number of characters per entry). Although, some of the variables which are coded are more arbitrary because of the subjective judgment of the researcher. For this study the judgment towards the variable “concreteness” was the one with the largest chance on subjective judgment. This is solved to coded the items where some discussion is possible which have the strongest tendency towards an category. The variable concreteness is set per entry. Per entry the entrepreneur can mention several next steps. In some cases the entrepreneurs mentioned 3 next steps. Two of them being concrete with time, place or resource indicator and one of them of a more comprehensive kind. In this case the subjective judgment of the researcher determined that this entry will be treated as concrete with time, place or resource indicator due to the fact that the majority of the entry tend towards very concrete.



# CODING MANUAL

## 1. Planning sophistication

### 1.1 Planning sophistication Content

#### 1.1.1 PSC VoS (Planning Sophistication Content - Variety of Subjects)

Analyze per week (Question 4)

Distribute the subjects over the categories

Extern - Venturelab program - B-general - B-HR - B-Finance - B-Marketing - B-Strategy - B-Innovation - Personal - Planning

#### 1.1.2 PSC Concreteness (Planning Sophistication Content - Concreteness)

Analyze per week Q4

Code in Excel sheet the entry upon the following review:

Subject	Yes/No	Namely
Concrete:	Yes/No	
Time	Yes/No	Exact:
Place	Yes/No	Exact:
Resource allocation	Yes/No	Exact:

Based upon the review above, entries can be distributed over the following categories:

0 = No entry

1 = Vague concepts

2 = The concept/subjects are very comprehensive

3 = Concrete subjects without time, place or resource indicators

4 = Concrete subjects with time, place or resource indicators

5 = Concrete subjects with time and place and resource indicators

## **1.2 Planning sophistication Structure**

### **1.2.1 PSS NoS (Planning Sophistication Structure - Number of Subjects)**

Analyze per week Q4

Count the number of issues/subjects the entrepreneur is mentioning per week

### **1.2.2 PSS Noc (Planning Sophistication Structure - Number of characters)**

Analyze per entry per week Q4

Count the number of words the entrepreneur uses

## **2. Planning commitment**

### **2.1 PC MesA (Planning Commitment - Mentioning earlier stated actions)**

Analyze per entry per week Q2

Categorize the answers per entry in the following categories

0 = Not planned, no results

1 = Planned, no results

2 = Not planned, however results

3 = Planned steps, other results

4 = Planned steps , exact results, however less than planned

5 = Planned steps, exact results

6 = Planned steps, exact results, however more than planned

## 7.2 Appendix 2 Expert panel presentation rating scheme

### Business Assessment Venturelab

Name company:

Name entrepreneur(s):

Date of presentation:

Name panelist:

<i>Please indicate the extent to which you agree or disagree with the following statements</i>	<b>Strongly disagree</b>						<b>Strongly agree</b>	<b>Don't know/ not applicable</b>
	1	2	3	4	5	6		
<b>The management team...</b>								
...has a strong historical track record/experience	0	0	0	0	0	0	0	0
...has a complete set of necessary skills	0	0	0	0	0	0	0	0
...has financial incentives to keep them in place	0	0	0	0	0	0	0	0
...has a structure and division of labor suited for growth	0	0	0	0	0	0	0	0
<b>Remarks:</b>								
<b>Individual members...</b>								
...have much experience	0	0	0	0	0	0	0	0
...have entrepreneurial attitudes	0	0	0	0	0	0	0	0
...have a good business judgment	0	0	0	0	0	0	0	0
...have great motivation/commitment	0	0	0	0	0	0	0	0
...have the necessary social competences	0	0	0	0	0	0	0	0
...know their strengths and limitations	0	0	0	0	0	0	0	0

**Remarks:**

---

**The directors/scientific board...**

...is highly respected in the community	0	0	0	0	0	0	0
...consists of independent thinkers	0	0	0	0	0	0	0
...shows proactive involvement	0	0	0	0	0	0	0

**Remarks:**

---

**The product...**

...is revolutionary rather than just evolutionary	0	0	0	0	0	0	0
...has a high consumer demand	0	0	0	0	0	0	0
...is easily scalable	0	0	0	0	0	0	0

**Remarks:**

---

**The business model...**

...makes sense	0	0	0	0	0	0	0
...serves a broad customer base	0	0	0	0	0	0	0
...involves an easy distribution of products	0	0	0	0	0	0	0
...has a unique selling proposition	0	0	0	0	0	0	0

...is financially sound

0 0 0 0 0 0 0

**Remarks:**

*Form continues on other side*

<i>Continued</i>	<b>Strongly disagree</b>						<b>Strongly agree</b>	<b>Don't know/ not applicable</b>
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		
<b>The industry...</b>								
...shows great market potential	0	0	0	0	0	0	0	
...is heavily dependent on legal and political policies	0	0	0	0	0	0	0	
...involves few substitutes	0	0	0	0	0	0	0	
...shows little rivalry among existing competitors	0	0	0	0	0	0	0	
...has low barriers of entry	0	0	0	0	0	0	0	
...shows a low bargaining power of suppliers	0	0	0	0	0	0	0	
...shows a low bargaining power of buyers	0	0	0	0	0	0	0	

**Remarks:**

<b>Intellectual property...</b>								
...can be protected: technology is unique	0	0	0	0	0	0	0	
...can be translated into many applications	0	0	0	0	0	0	0	

...is strongly protected by patent(s) 0 0 0 0 0 0 0

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**Remarks:**

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**Stage of technology...**

...is ready to commercialize/has a short time to market 0 0 0 0 0 0 0

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**Remarks:**

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**Technological partnerships & alliances...**

...are highly probable 0 0 0 0 0 0 0

...consist of diverse collaborations already 0 0 0 0 0 0 0

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**Remarks:**

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**Concerning future innovation...**

...there is a robust pipeline 0 0 0 0 0 0 0

...there is a high chance of 2nd generation product development 0 0 0 0 0 0 0

0

**Remarks:**

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**The presentation...**

...was presented in clear, concise and logical form	0	0	0	0	0	0	0
...stayed within the time frame	0	0	0	0	0	0	0
...conveyed confidence and professionalism	0	0	0	0	0	0	0
...demonstrated knowledge of the industry	0	0	0	0	0	0	0
...showed responsiveness to questions by panelists	0	0	0	0	0	0	0
...triggered and maintained panelists' interests	0	0	0	0	0	0	0

**The visual aids...**

...were clear and readable	0	0	0	0	0	0	0
...were relevant to the plan	0	0	0	0	0	0	0
...looked attractive and professional	0	0	0	0	0	0	0

**Remarks:**