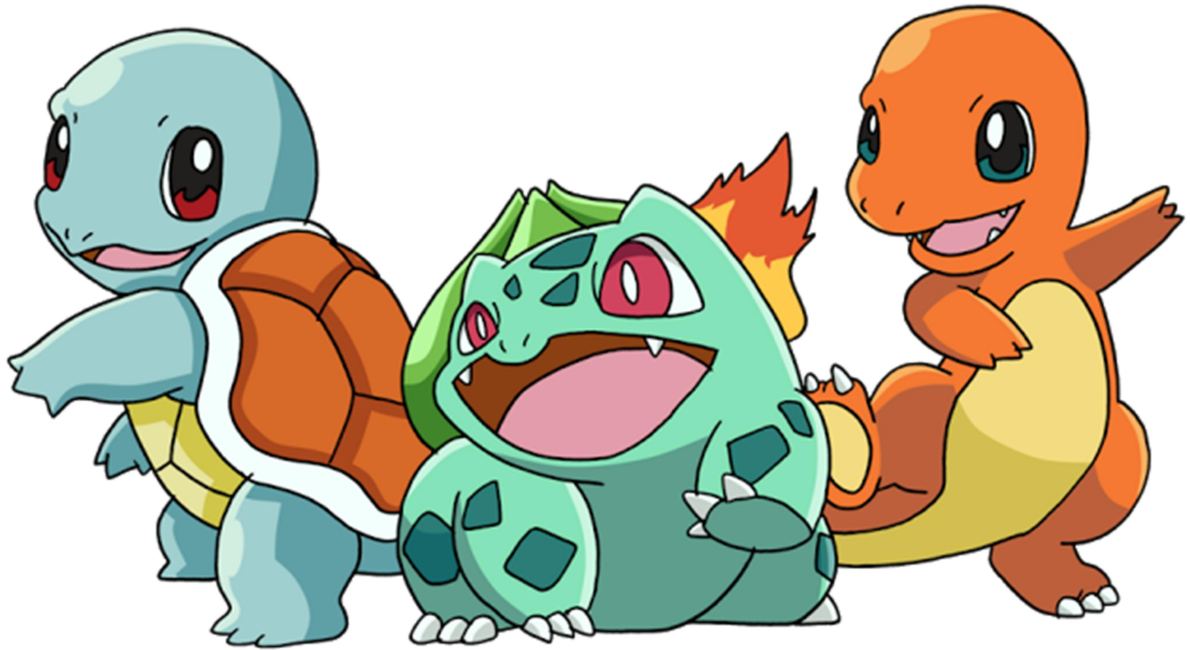


# How do SME's use Business Model Stress Testing?

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*MOT 2910*

*Master Thesis*





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Figure 1 The Three Starter Pokémon in Generation I of Pokémon the game(Lester, 2013)

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## Preface

As a small kid I was a huge fan of Pokémon, and that still hunts me now and then. When I was reviewing the Business Model Stress Test of the participating companies, it suddenly popped up in my head. What these companies are doing now, is the same thing I was doing as a little kid, and with me, all other kids that played Pokémon on their Game Boys.

When the game starts, Professor Oak welcomes you in the world of Pokémon and gives you a choice on how to start this adventure. The choice that you have to make, is which Pokémon you want as your starter Pokémon. The Pokémon you can pick are Bulbasaur, Squirtle or Charmander. This is the moment that little kids are able to come up with amazing strategies and sound reasoning.

To sketch the context for people who are not familiar with Pokémon, a short introduction. Pokémon are creatures that live everywhere, and can be captured by humans, which are called Pokémon Trainers. Pokémon Trainers, as the name suggests, trains Pokémon in order to evolve, improve skills and stats. The Pokémons are used to fight battles between Pokémon Trainers, or used as companions to work with, travel with, or any other way one could use a Pokémon. Pokémon Trainers can carry a maximum of six Pokémons at a time, and are stored in the so-called Poké-Ball.

Pokémons have different characteristics, and can be described by different elements, as they appear on our world. This can be water, fire, earth, psychic, leaf, rock, etc. Some elements are strong against others, e.g. Water vs Fire, which can make it much harder to win the battle.

Pokémon Trainers that are strong can become Gym Leaders. By defeating these Gym Leaders, you can earn badges, and if you've earned enough badges, you can participate in the Pokémon League. The Pokémon League can be compared with the World championships of Soccer in the real world, it's a very big event. In the Pokémon game, the goal is to win this Pokémon League, become the best Pokémon Trainer in the world.

But, Professor Oak asked which Pokémon to choose, and the answer is not that easy, because the question that precedes the answer of Professor Oak, is *"What will my path throughout this game look like?"* To give a short overview of the biggest hurdles in the first phase of the game, a short list:

- Pewter Gym – Boulder Badge – Rock Element
- Cerulean Gym – Cascade Badge – Water Element
- Vermilion Gym – Thunder Badge – Electric Element

These Gyms are scenarios that will happen, due to the game constraints, but with what kind of Pokémon team do you approach them? Let's see with the three starting Pokémon, if there is an optimal choice.

Table 1 Confrontation between Starter Pokémon and Gyms

Scenario	Pewter Gym(Rock)	Cerulean Gym(Water)	Vermilion Gym(Electric)
Pokemon			
Bulbasaur(Grass)	Green	Green	Grey
Squirtle(Water)	Green	Grey	Red
Charmander(Fire)	Grey	Red	Grey

Later in this game, the starter Pokémon are less important, due to the other Pokémon that can be caught. In order to make sure you have a good Pokémon team, depends mainly on the opponent. In the game this is rather predefined, but you could also battle against friends and family by “Linking up”. My nephew and I were fanatics, and every School vacation we battled all day long, against each other, or train our Pokémon. When you have someone unpredictable to fight, the Stress Test has even more overlap with Pokémon than meets the eye.

Pokémon teams in general have a certain focus, since not all elements fit in the Pokémon team. This focus, or strategy, is related with the sort of Pokémon chosen for the team. The choice of leaving out certain Pokémon could lose, or win, you the match. For this reasoning, the Pokémon team, the six different Pokémon, represents the Business Model, and my nephew’s team focus is the input for scenario’s.

Table 2 Business Model Stress Test with Pokemon team as Business Model and focus of enemy as scenario input

Pokémon Team \ Team Focus Scenario	Focus on defeating Grass, Fire and Water	Focus on defeating Flying, Psychic, Fire	Focus on defeating Dragon, Water, Rock
Venesaur(Grass)	Quick Defeat (Fire)	Favourable Battle (Water)	Favourable Battle (Water)
Vaporeon(Water)	Quick Defeat (Electric/Grass)	Normal Battle	Quick Defeat (Electric)
Moltress(Fire)	Quick Defeat (Water)	Quick Defeat (Water)	Normal Battle
Alakazam(Psychic)	Normal Battle	Quick Defeat (Bug)	Normal Battle
Dragonite(Dragon)	Favourable Battle (not affected)	Problematic (Flying)	Quick Defeat (Ice)
Zapdos(Electric)	Favourable Battle (not affected)	Problematic (Flying)	Favourable Battle (Water)

In the Stress Test of this Pokémon team, and the possible scenarios as input, shows us that the use of Moltress, the Firebird, is not an optimal choice and should be adapted in order to improve the chances of success. The Pokémon that have the most impact on success are, Zapdos, the Electric-bird, and Venesaur, the Grass and Poison Pokémon.

This short introduction in Pokémon showed how kids, at the age of 7, think naturally about cause and effect. They naturally Stress Test their Pokémon team, without even realizing it is structured like this, since it comes naturally to them. So, why is it so difficult for adults to do this, and why is it, that a structured approach and a professional facilitator are necessary to get these insights? In this Thesis the Business Model Stress Test is subject of research, but before the official Thesis starts, I would like to thank some people.

First I want to thank my parents for everything they’ve done for me. By supporting me, showing me how to live my own life, and by “giving” me the “workers” mentality that helped me to pull through all the hardships I’ve overcome. Sometimes I didn’t call for a week, and sometimes I called multiple times a day, sometimes I didn’t even know what for. You’re the best parents ever!

Next I want to thank Harry for all his time, insights, patience, effort, guidance, input, understanding, support and especially for your care. The Zo-Dichtbij case talked about caretakers, I almost felt like you were my caretaker. By supervising me you took on a humongous challenge, which was difficult, and sometimes even frustrating I can imagine. I hope that all the energy you put in this project, has, in one way or another, payed off. People always talked about Harry the Boeman, but I never felt it like that. I felt that what you did, and still do, is fair. Harry you talked to me about some Master Thesis Preparation issues via Skype, and told me that you lived in Meteren, the little town I grew up in. Your children went to the same school as I did, and as some people say, there are no coincidences. I was always more interested in Business than Technology, and combined with the Meteren connection, it was a perfect match. Every time people heard I had you as my first supervisor, they looked shocked, but I always told them you were the best supervisor one could wish for. So Harry, Thank You!

Victor, you are a kind man that has a big heart. Everyone I talk to, also outside of TPM, talks good about you, and that is a special treat not many have. During this Thesis you helped me to keep a broad perspective, and don't close of other possibilities that also could lead to the final result. I want to thank you as my supervisor, but especially as the teacher that showed me that the entrepreneurial spirit can also shine from within a corporation.

Robert, I want to thank you for the insights and tips I got from you in the short amount of time you were my Chair. But what I want to thank you even more for is that you are the director of the Management of Technology Programme. The informal way how you approached us from the very beginning was welcoming, and after this you were always open for conversations or questions. The Management of Technology Programme was the best part of my studies, it evolved me into a better student and better future employee, or future boss. The start in Zeeland I will never forget, and should be maintained for all future MOT Students, it's the foundation of a very strong bond!

Timber, this research would have never been as good as it is now, and the companies would never have been supported so well during the workshop and consulted on what to do, as they were now. I know I took a lot of time from you, and if I ever can pay the favour back, give me call, or any other means of communication. Next to that, you are extremely easy to work with, and you really take the time to sit down and think "with" the person, instead of problems or give new directions. Thank you!

The next people I would like to thank is the 21<sup>st</sup> Board of Curius, Felix, Jaron, Anna, Bas and Stephanie. Guys, we experienced one hell of a year with extreme peaks, and extreme lows. I'm glad you guys can remember everything and tell me all about it what happened, because I forgot everything. Let's keep seeing each other for the rest of our lives!

One person that understands and knows me like no other is Nikola, my roommate. You helped me more than you probably realise, by just listening to all the crap, you helped me to cool down or we discussed different topics that would enrich me as a person. Next to this, you helped me big time, by checking my Thesis on my English, words can't express the gratitude! So let's drink a "Tripel Karmeliet" and ravage the LoL world with the epic NaSi combo;

Lastly I want to dedicate my Thesis to my grandfather, to honour J.N. De Jong, who passed away during my Thesis. You helped me to become the man I am now. You taught me to work together with people. With other people you can reach greater heights, compared to when you're alone, so let's help each other from time to time.

## Abstract

Change is a natural thing for human beings. They change and adapt, in order to create the best possible outcome. Companies have a hard time doing exactly what humans can naturally do, change and adapt. This Thesis describes a research that looks upon the use of the Business Model Stress Test. The Business Model Stress Test confronts the Business Model of a company with scenarios, in order to investigate the level of threat. The research question for this thesis is:

**How do Small and Medium Sized Enterprises, familiar and unfamiliar with Business Model Tooling, and different lifecycle stages, use Business Model Stress Testing in order to be more agile in responding market dynamics?**

With the use of a pre-, post-test experiment research design, this field-experiment uses Business Model Tooling Familiarity and Organisational Life Cycle Stages to distinguish four different categories. These four different categories describe four different companies that are “treated” with the Business Model Stress Test, to see how these companies use this tool, and what the effect of the tool is on the companies. By the use of questionnaires for the pre-, and post-test, the effect of the Business Model Stress Test has been measured. The observation during the experiments described the process of how the Business Model Stress Test is used by these companies. With the use of triangulation and coding of the data, results were found, how to use the Business Model Stress Test.

The results of the questionnaires and the workshop observations led to new insights after analysis of the information. What appeared to affect organisations in the use of Business Model Tooling, were Business Familiarity and Organisational Life cycle stages. Small and Medium sized Enterprises that are familiar with Business Model Tooling could use more of the workshop potential, compared to Small and Medium sized Enterprises that are unfamiliar. The knowledge gap between Organisational Life Cycle stages is mainly to the level of informedness on their own market, which is higher in Mature Companies. Business Model Designing is mainly used for overview creation by Mature companies, while Startups use the Designing as a structured approach to create focus. The Business Model Stress Test is used to test the correctness of the Startup focus, while Mature companies use the Stress Test to improve their Business Model and test how to change the Business Model if the market demands this.

Companies need to be Agile when their Market is Dynamic, in order to survive, but if the Market is not Dynamic, it does not necessarily needs to be Agile. The Business Model Stress Test improves the Agile capability of Small and Medium sized Enterprises, regardless of familiarity and Life Cycle stage of the Organisation. The use of Disruption strategies as scenario input for the Business Model Stress Test can indicate the alignment of the Business Model and the Disruption Strategy of the organisation.

The scientific community benefits from these insights due to the link between Market Dynamics, Agility and Business Models, which has not been related in research before. The use of how Business Model Tools are used by different type of users is also a complete new contribution to the current Business Model Literature. Society benefits in first instance due to the improved user and tool alignment on the Envision Platform, which results in an improvement of the European Economic Performance and Innovativeness of Small and Medium sized Enterprises. Secondly, another large contribution to society is the supporting character of this Thesis towards four companies.

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# 1 Introduction

*This is the first Chapter, the Introduction. The Introduction creates the foundation for the subsequent chapters. This chapter will identify the different knowledge gaps in current research areas, which is the input for the Second Chapter – Literature Review. The formulated research questions will be answered in the Sixth Chapter – Discussion, Conclusion and Recommendations. In order to create the foundation for this research, the Research Environment, Research Objective, Research Questions and Structure of this research are discussed.*

## 1.1 Research Environment

Change is a phenomenon familiar to all people in the world. Physical change, like a new born that changes over time into an elder, or psychological change, learn how to ride a bicycle or tie shoelaces. But change also happens around us, the weather, traffic, or the interest of people. Change is a core aspect of life, and as CEO Mark Parker of Nike states “Changing and adapting is essential to survive in the world of today” (Carr, 2013). This statement was made, related to Business Models, and continued, “Business Models are not meant to be static”. Business Models are a representation of an organisation, which suggests that, **“organisations of today cannot to be static if they want to survive”**.

In the European Union, organisations have to change drastically because of the economic crisis (OECD, 2009). Unemployment rose drastically, and 67% is employed within a Small Or Medium sized Enterprise, thus change is essential (Eurostat, 2015). Out of every value added Euro produced in Europe, 58 cents is made thanks to Small and Medium Sized Enterprises (European Commission, 2014). The European Union wants to improve the current economic performance, and has acknowledged the importance of Small and Medium sized Enterprises. By funding the Envision program, **the European Union wants to improve the economic performance and innovativeness of Small and Medium sized Enterprises via Business Model Innovation** (Envision, 2015). **The goal of Envision is to build an online platform where Small and Medium sized Enterprises can experiment with different Business Model Tools to improve their Business Model.** Improving the Business Model of organisations can be stated as Business Model Innovation (Amit & Zott, 2012).

Experimenting with Business Models, or implementing new Business Models, could be troublesome for Small and Medium sized Enterprises. Many different Business Model Ontologies exist, which make use of different steps or approaches. Small and Medium sized Enterprises could experience some Business Model Ontologies as laborious and cumbersome, while others have no practical implementation guideline, due to the holistic perspective (Bouwman et al., 2015). The current Business Model Tools can fulfil different user needs, e.g. Business Model Designing, cover unwanted aspects, e.g. Information flow overview, and unsuitable for some users, e.g. Very abstract tools for Bakery owners. **The difference between user needs and tools, suggests that not all tools are suitable for all users, and there is a discrepancy between users and tools.** The Envision project acknowledges the gap between users and tools as a concern, just like the academic world (M. Heikkilä, Bouwman, Heikkilä, Solaimani, & Janssen, 2015). Research on the use of Business Model Tools by different users, and which Business Model Tools should be used by whom, is still in its infancy (M. Heikkilä et al., 2015; Osterwalder, Pigneur, & Tucci, 2005).

Users of Business Model Tools are categorized in three segments as stated by S. Lambert (2008), Users who are External to the Entity, Managers and Other Decision Makers, and Information Systems Developers. These categories are all focused on the organisation, which implies that the Business Model discrepancy should be between different sort of organisations. Andries and Debackere (2007) define the evolvement of a new business through the early stages of the Organisational Life Cycle towards a more stable business, as Entrepreneurial Business Model Adaptation. This would suggest that ***the Business Model changes according to the Organisational Life Cycle stages***. The Life Cycle Stage not only affects the Business Model, as Freeman and Engel (2007, p. 95) suggest, “As the Startup grows, matures, and develops, its innovation process slows”. ***When considering the discrepancy between users and Business Model Tools, an influential variable on the user side, are the Organisational Life Cycle stages.***

Results of Business Model Tools are affected by the Organisational Life Cycle stage of an organisation, but the use of Business Model Tools is affected by the user, or users, of the tool. A tool is only as good as the users’ proficiency with it, which suggests that ***Familiar users are better in using the Business Model Tools compared to Unfamiliar users***. In literature the level of Business Model Familiarity and usability has not been stated, which can be considered a knowledge gap. ***The Business Model Tools on the online platform of Envision, will be used by familiar and unfamiliar users***. This indicates the practical need for investigating different types of Business Model users.

Different organisations can have different Business Models, of different quality. Business Model metrics are not yet developed, thus whether a Business Model is “good”, or “bad”, cannot be stated (M. Heikkilä et al., 2015). But quality can be checked by putting Stress on the Business Model, and identify weaknesses and inconsistencies in the Business Model. The Business Model Stress Test uses the Business Model and selected Scenario’s as input to check the robustness of the as-is, or to-be, Business Model (Bouwman et al., 2012). ***The Business Model Stress Testing tool supports the organisation by improving the understanding of their own Business Model, what decisions to take considering the uncertain future and how to adapt to possible changes.***

Decisions have to be taken by organisations, even though the future is uncertain. Sometimes complete organisations must change, because of competitors, regulative changes, new technologies, change of command or new corporate strategy and vision. Taking decisions, in sometimes uncertain environments, such as high dynamic markets, is tough, but it has to be done in order to survive. When the decision to change has been taken, the time it takes to change is crucial when the market is constantly pushing. Agility, the ability of an organisation to scan and respond to the market, and adapts according to the needs of the market (Doz & Kosonen, 2010), is an essential capability in Dynamic Markets. Business Model Stress Testing uses scenarios, in which different market scenarios can be used to identify and strengthen the weak Business Model elements. Which raises the question if ***the Business Model Stress Testing tool can help a Small and Medium sized Enterprise to become more Agile when facing Market Dynamics***. Next to the added value for the organisation, ***Market Dynamics, and Agility can give valuable insights in how the Business Model Stress Test is used.***

The European Union wants to improve economic performance and innovativeness of Small and Medium sized Enterprises via the Envision program. By improving innovativeness of Small and Medium sized Enterprises, Innovative disruptions will occur, which pose new threats to existing companies. The Innovation Disruption Model of Christensen and Raynor (2003) distinguishes three disruption Strategies, i.e. Sustaining, Low-end and New-Market disruption, that could be used as scenario input for the Business Model Stress Test. ***The use of Innovation Disruption scenarios as input for the Business Model Stress Test is not documented in current literature, but could lead to valuable insights for the Envision platform.***

The research overview has been created in this sub-chapter and leads to the following conclusion. ***In the continuously changing world, where Dynamic Markets demand Agile organisations that can cope with Disrupting Innovations, the European Union attempts to prepare Small and Medium sized Enterprises. The funded Envision platform aims to increase economic performance and innovativeness of organisations that are Familiar and Unfamiliar with Business Models, and in different Life Cycle stages, by using Business Model Innovation. In order to prepare Small and Medium sized Enterprises for the continuously changing world, the Business Model Stress Test could prepare the different types of users, by testing the Robustness of their Business Model. Improving the usability of Business Model Tools, i.e. Stress Testing, for the online platform of Envision, and thereby closing the discrepancy between users and tools, is essential when all type of users should be able to use Business Model Tools on the Envision platform.***

## 1.2 Research Objective

The main research objective of this Thesis is to improve the usability of Business Model Tools for the Envision platform, with a specific focus on the Business Model Stress Test, to ultimately increase economic performance and innovativeness of Small and Medium sized Enterprises in Europe. The usability of the Business Model Tools can be improved by identifying different needs per user and incorporate these into the Envision platform. The users are distinguished on variables that have a high impact on the result and use of Business Model Tools, i.e. Business Model Familiarity and Organisational Life Cycle stage.

With the use of questionnaires, the characteristics of the different user profiles, i.e. the different companies, are identified. By using the Business Model Stress Test in a workshop setting, the use of the Business Model Stress Test by the actual users can be observed in order to determine the needs of the user profiles. By identifying the different user profiles, and different needs per user, recommendations on how to improve the Business Model Stress Test can be formulated. The deliverable is a set of recommendations on how to improve the Business Model Stress Test with regard to different users. The recommendations will also relate to the Envision Platform, with a specific focus on the incorporation of usability of the Business Model Stress Test.

The scientific community will benefit from the insights on how Business Model Stress Testing relates to the different concepts of Agility, Market Dynamics, Innovation Disruption, Organisational Life Cycle and Business Model Familiarity.

### 1.3 Research Questions

The main research question is a result of the Research Objective stated in section 1. The main research question is supported by sub-research questions, by answering these sub-research questions the main research question will be answered. The sub-research questions are derived from the different elements of the research objective and the main research question.

The main Research Question is:

**How do Small and Medium Sized Enterprises, familiar and unfamiliar with Business Model Tooling, and different lifecycle stages, use Business Model Stress Testing in order to be more agile in responding market dynamics?**

In order to answer the main research question, the question is broken up in sub-research questions in order to better answer the different components of the main research question.

#### 1.3.1 Sub research questions

The sub research questions and the reason for these questions will be discussed in this section. The different questions will be introduced after a clear reasoning, which describes the essence and purpose of the question.

The first question will look into the first aspect of the research, the familiarity of Business Model Tooling. How do users that are familiar with Business Model Tooling, and users that are not familiar with Business Model Tooling, differ? When the Business Model Stress Test is used by all types of users, this knowledge gap needs to be covered, in order to let all type of users use the Business model Stress Test, which led to the first sub research question:

**Is there a knowledge gap between familiar and unfamiliar users of Business Model Tooling and the way they use Business Model Tooling, i.e. Stress Testing?**

The second question relates to the different life cycle stages of companies and the use of the Business Model Stress Testing. Companies that exist for a long time, have certain ways of doing things, which could result in a narrowed mind-set and inflexibility. This could hinder the process of using Business Model Tools, such as the Business Model Stress Testing Tool. In order to determine the effect, and incorporate the results into the requirements, companies in different lifecycle stages are taken into account. The result of this reasoning has led to the second sub-research question:

**Is there a knowledge gap between the start-up and mature life cycle users of Business Model Tooling and the way they use Business Model Tooling, i.e. Stress Testing?**

The third question relates to the input of the Business Model Stress Testing tool, to test the usability. In the Innovation Disruption Model, as discussed by Christensen and Raynor (2003), three different scenarios are distinguished, i.e. Sustaining, Low-End and New Market disruption. These scenarios are input for Business Model Stress Test, to identify the use of different types of scenarios within the Business Model Stress Testing tool. The third sub-research question is:

**How does Business Model Stress Testing handle scenarios with regard to a sustaining strategy, a low-end disruption and a new-market disruption?**

Companies can swiftly change and adapt to new market trends if they are aware of the market. The Business Model Stress Test confronts scenarios with the current Business Model in order to see the effect. In this sense, the company could be better prepared if the Business Model Stress Test is used. The effect of the Business Model Stress Testing tool on the capability of Agility will be looked upon.

#### **How does the Business Model Stress Testing tool affect the capability of Agility?**

The last sub-research question relates to the conclusion of the conducted research. The conclusion is the outcome of the analysed data gathered from the different workshops and questionnaires. The results will flow in a set of recommendations, on how to serve the users of Business Model Tools on the Envision Platform best. The last question of this thesis is formulated as follows:

#### **What recommendations with regard to the Business Model Stress Testing tool can be formulated?**

### **1.4 Research Structure**

This introducing chapter described the boundaries and scope for this Thesis, supported by the Research Objective and Research Questions. In the First Chapter the knowledge gaps in areas of research areas were identified, which is the input for the Second Chapter. The Second Chapter creates an overview of the different research areas in order to form a solid base of knowledge, on which to build this Thesis. When all the concepts are clear, the design of the research and how the experiment has been executed is described in the Third Chapter, the Methodology. The Results, in the Fourth Chapter, will discuss the obtained information from the workshops and the questionnaires. The information gained from the workshops and the questionnaires are analysed in the Fifth Chapter, Analysis. The last Chapter combines the discussion on the research, concludes the findings in this research and proposes recommendations in the Sixth Chapter, Discussion, Conclusion and Recommendations.

## 2 Literature review

*This is the Second Chapter, Literature Review. The Literature Study is an overview of the current knowledge base of research areas that were identified in the Introduction. This chapter will explore the different concepts, on which the Third Chapter - Methodology, can be built. In the Sixth Chapter - Discussion, Conclusion and Recommendations, this foundation of knowledge will serve as input for the comparison to the newly acquired knowledge. The identified research areas are investigated in the following chapter, but first the Investigation Approach is discussed in order to understand how the knowledge on Business Models, Scenario Analysis, Market Dynamics, Agility and Organisational Life Cycle is collected.*

### 2.1 Investigation Approach

The main investigation tool was the internet (Lewis, Thornhill, & Saunders, 2007). Additionally after some literature was read, relevant references to other literature would also be read, as per the snowballing technique. The different concepts and theories are input variables for search terms in search engines on the internet, such as Scopus, Science Direct or Google Scholar.

In order to understand and cover all the research related topics, non-academic literature was included in the search. All literature for which had to be paid, has not been used in this research. Initially the structure of the paper or report will be looked upon, with headings, or the index if available, secondly the abstract will be read, and if the paper is still interesting, the whole paper will be scanned and the important elements read. The relevant papers will be downloaded and stored in a "Thesis database", so the information will not get lost.

The sources of information that are used within this thesis are stored in the tool Endnote, a database for citations, in order to cite correctly and in the APA6th Style. The literature study is the foundation of the thesis and the information is well stored and documented.

Business Models are the first concept that will be discussed, with a focus on identifying the different interpretations that there are. Thereafter the Business Model Tooling section will discuss the available tools for Business Modelling. One of these Business Model tools, the Business Model Stress Testing Tool will be discussed in the fourth sub-chapter. The fifth sub-chapter will lay the groundwork for scenario analysis, to understand how this method is used, and how this can be incorporated with the Market Disruption model for our research. Next we will shift our focus to the Organisational Life Cycle, in which we discuss the different stages of organisations, i.e. start-up versus mature companies. In the last section we will tie up different concepts in order to ground our research.

### 2.2 Business Models

*The Business Model Concept is the foundation for this thesis. The following sub-chapter will discuss the different business Model Tools that can be used to reach different goals. In this section the overview of the current knowledge base on Business Models is discussed.*

The core competencies of a company are embedded in the BM of a company yet researchers are not even clear on what the definition of a Business Model is, as stated by Morris, Schindehutte, and Allen (2005). Morris et al. identified 30 different definitions of BMs and concluded that the definitions had three general categories in common. These three categories led Morris et al. to the

following definition of a Business Model, “A Business Model is a concise representation of how an interrelated set of decision variables in the areas of venture strategy, architecture, and economics are addressed to create sustainable competitive advantage in defined markets”. New research by Zott, Amit, and Massa (2011) stated, after reviewing 133 papers that, “The field is moving toward conceptual consolidation, which we believe is necessary to pave the way for more cumulative research on business models”. The lack for a BM definition does not disclose the use of this theory in business and in research. Different BM Frameworks are designed to support businesses and organizations, in order to make a plan of attack for starting up a company, to grasp the understanding of what the company does, or if they want to understand what their own BM is.

Research into Business Models gained traction in the academic world around 1995 (Zott, Amit, & Massa, 2010). The main reason for the growth of Business Models is Alexander Osterwalder, who presented his Business Model Ontology in the early 2000’s, which was later renamed to the CANVAS Business Model (Osterwalder, 2004; Osterwalder & Pigneur, 2009). The Business Model Ontology as described by Osterwalder is a conceptualization and formalization of the elements, relationships, vocabulary, and semantics of a Business Model (Osterwalder, 2004). Thanks to Osterwalder Organisations and institutions learned what the potential of Business models could be.

When considering the different Business Model ontologies, the foundations of these Business Models are worth mentioning. In the European Management Journal, Lambert and Davidson (2013) state that there are three dominant themes concerning Business Models;

- 1) *The business model as the basis for enterprise classification*
- 2) *Business Models and the enterprise performance*
- 3) *Business Model Innovation*

BM ontologies and taxonomies can be used as a classification tool, to classify companies, or enterprises. These insights can be used to compare and classify industries or groups of enterprises. By using BMs, companies, or enterprises, can be divided into homogeneous groups of the same “class”, which can be subjected to different studies, such as the relationship between firm performance and business models, or Business Model Innovation. The core notion is that, by classifying companies via BMs, a foundation is created on which new research can be build.

Zott et al. (2011) describes in the Journal of Management, three main themes, but with a different categorization than Lambert and Davidson;

- 1) *E-Commerce*
- 2) *Strategy*
- 3) *Technology and Innovation Management*

The focus of Zott et al. (2011) is not on the Business Model concept itself, but on the research area and how the Business Model is defined. In that sense there are three categories, however unlike the themes by Lambert and Davidson (2013), no foundation is set which can be built upon. The usefulness of the perspective of Zott et al. (2011) is less useful for this thesis as compared to Lambert and Davidson (2013), which also reflects the different perspectives in research schools. This will be discussed further in the next paragraph.



As discussed in the Research Agenda of Bouwman et al. (2012) there are two different schools, the American and the European school. The European focus, as described in the article of Lambert and Davidson, is more Information Systems(IS) focused, while the American side is more focused on strategic management and the specific classification of the BM. The difference in perspective is that, the American focus is more top-down, from strategy to BMs, while the focus of the European school is initially on Information Systems, while also taking BMs into account. The applicability of European BMs, and the BM Tools, are more practical in nature, and have a higher usability. The American BMs have a higher level of abstraction, which could be more difficult to grasp for the owner of for example a bakery on the corner of the street. Therefore the use of European oriented BMs will be used in this Thesis.

Business Models are used by a variety of companies, businesses, alliances and other forms of collaboration. When the “language” of Business Models is understood, the understanding of the parties involved and how the business generates value becomes clear(Osterwalder & Pigneur, 2009). One of the Business Model ontologies that goes one step further is the STOF-Business Model(Bouwman, De Vos, & Haaker, 2008). By combining four different domains, Service, Technology, Organisation and Finance, the business is described in such a way, that linkages between the different elements become clear in this Business Model. The STOF model is more focused on technological architectures and platforms, when compared to other Business Models, such as the CANVAS or VISOR(Bouwman et al., 2015). The STOF Business Model is especially useful when complex networks come into play(H. Bouwman, Zhengjia, Duin, & Limonard, 2008). The most familiar BM Ontology is the CANVAS Business Model, which is used as a brainstorm tool, to make a representation of the company. These commonly used BM Ontologies will be discussed in the next paragraphs to generate a general understanding of the BM field.

Next to the STOF and CANVAS Business Model, a common Business Model Framework is the E3-Value of Gordijn and Akkermans (2001). This BM “lightweight” Ontology is focused on e-Business and “the value viewpoint”. The C-Soft approach by (J. Heikkilä, Tyrväinen, & Heikkilä, 2010) is similar to the STOF approach, but as stated by Bouwman et al. (2015), C-soft is more focussed on product-customer segments, and the STOF is more focused on the service or the product. A more practical BM Ontology, which uses 6 different building blocks is the Entrepreneur’s Business Model by Morris et al. (2005). This Ontology is very practical and has an easy to handle format in which choices are offered to make the “decision making” process easier. El Sawy and Pereira (2013) came up with a Business Model Ontology for the Evolving Digital Space. This rather new framework has a focus on the Digital Business Industries and uses 5 building blocks for determining the real “Value” proposition, and the real “Cost” of Delivery.

Recent work on Business Models in relation with Entrepreneurship, done by Trimi and Berbegal-Mirabent (2012), suggests that the use of Business Models will help entrepreneurs to make more informed decisions, thus increasing the chances of producing a successful company. But, as Andries and Debackere (2007) concluded, the Business Model should be changed, or adapted, according to the organisational life cycle stage of the company. This would suggest that the use of Business Models should be repetitive, in order to change or adapt the company to ensure success, and to align the Business Model and the organisational life cycle stage. The ability to swiftly adapt the company to new trends and market needs is called Agility, which will be discussed in sub-chapter 2.7

– Agility. The ensuing section discusses the different available Business Model Tools which could support a variety of needs.

## 2.3 Business Model Tooling

*The previous sub-chapter created an overview of the Business Model research and is the foundation on which this sub-chapter is based. The next sub-chapter will focus on a single Business Model Tool: the Business Model Stress Test. The overview of the different Business Model Tools is shown in this sub-chapter.*

Business Model Tooling should accomplish a task or a purpose concerning Business Models. In the project of Envision, five different purposes for these tools are described, as shown in Figure 2, i.e. Explore, Design, Evaluate, Implement and Manage (Haaker, 2014). The purpose of explore, evaluate and implementation tools will be discussed in the coming section. The purpose of Design, i.e. the BM ontologies, will not be discussed due to the Business Model Agnostic. This entails that any Business Model Ontology can be used as input for the Business Model Stress Test. The purpose “manage” will not be used and discussed, since this purpose only adds value when the BM can be monitored, which is not the case in this research, due to time limitations. Some tools, as stated in the Envision project, will be mentioned according to their purpose. The tools that will be mentioned in the coming section, add value to that specific purpose, and to Business Model Tooling in general. But the discussed tools are mainly stated to get an overview of the availability of the different Business Model Tools.

### Explore

In the starting phase of building a BM, exploration is essential in order to determine what is necessary to include, exclude and which design to choose. The different tools that can be used are displayed in the top left section of Figure 2. Different tools can be used to explore the first steps. The Value, Information and Process analysis, also known as the VIP analysis, is an intermediate step to align business processes in a BM-driven way, which leads to better understanding of the organization which supports the design or redesign stage (Solaimani & Bouwman, 2012). Scenario Analysis can be used in the Business Model Stress Testing, in order to test different scenarios and how the BM will react to these futuristic scenarios. The Technology and Market scan are helpful in determining the type of BM Design.

### Evaluate

Evaluating the designed BM is an essential step when companies want to test, analyse or evaluate the BM design. The tools are presented, with the orange colour, in the middle of Figure 2. To check, or test, the robustness of a BM design, the Business Model Stress Testing tool can be used. This tool uses several predefined scenarios as input and checks if the BM will hold in new scenarios. This does not directly imply futuristic scenarios, but can imply alternative business circumstances. The different scenarios are possible future outcomes, and the BM will be tested in this fictional scenario in order to see how the BM holds. Scenarios are discussed in section 2.5 in more detail.

### Implement

During the implementation of a BM, the use of these specific tools can support different elements, which are necessary, in order to succeed. These tools are presented on the top right of Figure 2, with the green colour. Business Model Roadmapping is used to see how different actions have to be taken in order to change the current BM. Business and Enterprise architectures are necessary to

describe what and how should be done when and where. This is a very practical approach, while the BM is at a higher abstraction level.

The relation between the research agenda of Bouwman et al. (2012) and the Business Model decision trees of Innovalor, is clearly visible. The tools BM Roadmapping, BM Stress Testing and VIP analysis are also mentioned in this agenda. The research agenda also focusses on an extra tool which relates to Business Model analysis and agile software development. This tool focusses on software optimization for better support and which reflects the business better. Scrum software is supported by BM analyses, but communicative stakeholders and team members are necessary to create the correct level of communication, to translate the wishes and demands into useful software.

Knowing what the different available tools are and how these can be used, is crucial. A craftsman should know what the available tools are, in order to determine which tool serves the best purpose. Even though he only uses one tool, he should understand that a screwdriver is not meant for cutting, or a saw not for screwing. If he wishes to cut or to saw, he should use a knife or saw respectively. In order to understand this research field, the understanding of the different and available types of Business Model Tools has been laid out in the next Sub-Chapter. This will give better understanding how the conclusion has been formed. The tool that combines different concepts is the Business Model Stress Testing Tool. The Business Model Stress Testing Tool is the core focus of this thesis, and will be discussed in the subsequent Sub-Chapter.

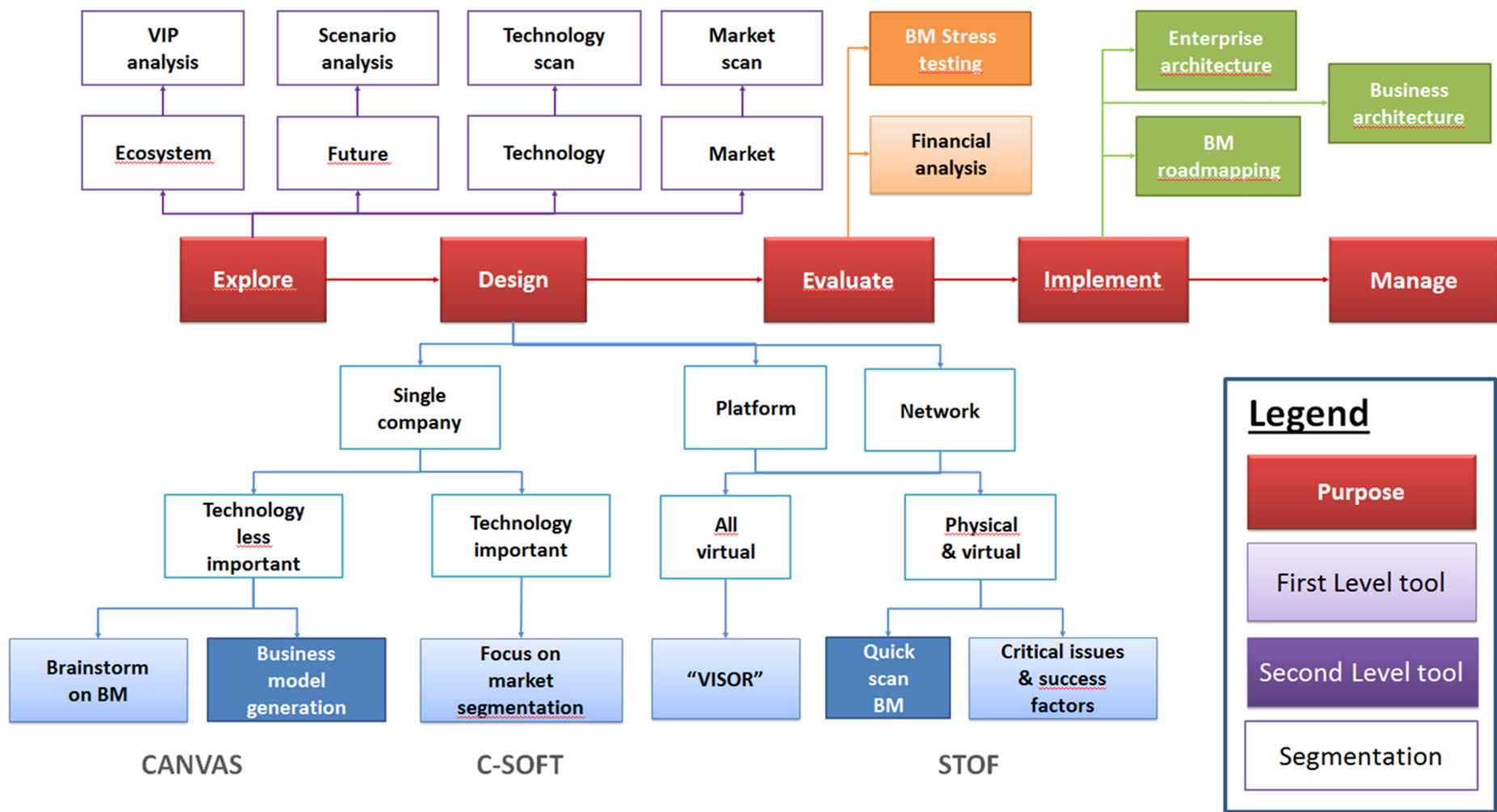


Figure 2 The five different purposes and the related tools (Haaker, 2014)

## 2.4 Business Model Stress Testing

*The previous sub-chapter created the overview of the available Business Model Tools, of which one of these tools is the Business Model Stress Test. In this sub-chapter the Business Model Stress Test is discussed. The next sub-chapter will discuss the aspect of scenario analysis that is used as input for the Business Model Stress Test.*

Janssen, Lankhorst, Haaker, and de Vos (2012) describe the Business Model Stress Testing methodology as a way to evaluate the robustness of a business model taking a collection of alternative environments into account. The use of scenario analyses and business modelling are taken into account in order to build a heat signature, to see what the organization should pay attention to, considering a specific futuristic scenario. Misalignment between an organization and its environment has been recognized as the main cause of corporate mortality (Bouwman et al., 2012)

In the research agenda of Bouwman et al. (2012) the Business Model Stress Testing tool is described as a six step method. The first step is to select and describe the Business Model of the organization. The information is already documented or it exists in the form of tacit knowledge, but it should be formatted into the templates of a Business Model framework, such as a CANVAS BM or STOF BM.

The selection of uncertainties, i.e. future scenarios and their uncertainties, are an essential step for a Business Model Stress Test. We will further discuss scenarios, and scenario analyses in the next section, section 2.5. The scenarios that can be used could be publicly available scenarios, but could also be a set of uncertainties stated or reported by domain experts. In order to cover all angles and perspectives, the whole project, or management team, should agree to the selected uncertainties. After the second step of selecting the uncertainties, the mapping of these uncertainties should be done in the third step. The different components of the Business Model and the selected uncertainties should be correctly mapped in order to create a clear picture.

Taking decisions in the fourth step will lead to the heat signature. The use of four colours, i.e. red, yellow, green and grey, will make clear where future concerns could lie, and where attention is necessary and where none is needed. The colours are the same as those of a traffic light, a red colour indicates that in that specific scenario the Business Model will fail and therefore this needs direct attention. The orange colour describes a negative, or positive, effect that should get attention in order to determine the specific cause. The green colour indicates no negative effects when this Business Model is used in that specific scenario. The grey colour indicates that there is no relevant influence on the Business Model. In Figure 3 a section of a Business Model Stress Test is shown in order to understand what a filled in BM Stress Test could look like.

		New entrants into FS		Regulatory flexibility on new players and new BMs		Personal data and privacy issues	
		Low market capture	High market capture	Conservative, inflexible, discourages change	Progressive, flexible, encourages change	"Chinese Walls" for customer data, limited data availability	Extensive commercial use of customer records, people at ease to release personal data
Service design	Customers and/or end-users						
	Target group (primary; secondary)						

Figure 3 Section out of Business Model Stress testing(Bouwman et al., 2012)

After deciding which sections of the Business Model might pose problems in the future, the next step: the analysis, comes into play. The overview created gives insights in how the current Business Model will hold in the future and this leads to information that can be analysed. The analysis focusses on how the Business Model can be adapted to be better prepared for future scenarios, in order to make the Business Model more robust.

The last step is to translate the findings into recommendations, which deal with improving the current Business Model by tackling the weak points. Inconsistencies in the Business Model could also be addressed to improve the current Business Model. These recommendations are focused on the activities to improve the Business Model that is used, or that will be used in the future.

The Business Model Stress Testing tool has the highest level of added value in the initial stages of (re)designing, the Business Model. The stress testing tool focusses on different future scenarios, which are plausible, and let the organisations think about the uncertain future. Thinking about these scenarios could lower the level of uncertainty and indicate where show stoppers are hiding in the Business Model.

The Business Model Stress Testing tool has input from two concepts, Business Models, as described in 2.2, and Scenario Analysis. Scenario Analysis will be described in the next section, in order to understand the functionality and the behaviour of the tool.

## 2.5 Scenario Analysis

*In the previous sub-chapter the Business Model Stress Test was discussed and how the concept of Scenario Analysis is incorporated. The next sub-chapter discusses Market Dynamics, which can be used as scenario input for the Business Model Stress Test. In this sub-chapter, the Scenario Analysis Method will be discussed.*

Scenarios are not an end in themselves, but are a management tool to improve the quality of executive decision making (Wilson, 2000). Strategies can be developed by using scenarios to support the strategy in the future. The strategy is tested with possible scenarios, and the implications and obstacles are translated into actions that are incorporated into the strategy. Scenarios should not be calculated, they should merely be used as a tool to find the common denominator and include this in the posed strategy. Different scenarios demand different strategies, but these strategies should not

be completely developed and tested, because this could leave the company paralyzed (Wilson, 2000). It is important to understand that scenarios with a high impact and high uncertainty are the scenarios on which we will focus in this thesis, and not on the other combinations of impact and uncertainty.

This management tool supports the decision makers to focus on possible actions to take in certain future scenarios and anticipate what to do when that time has come. As shown in Figure 4, the process of using scenario analysis consists of nine different steps in three different segments of action. The first is preparation, describing the company and the different scenarios in order to anticipate the possible futures. The second step is to take decisions on how to overcome different obstacles and deal with the uncertain future. The last step is action, executing the plan which is derived from the previous steps, and implement the different measures, or the new strategy. The approach is stated as a linear process, but this process can also be nonlinear.

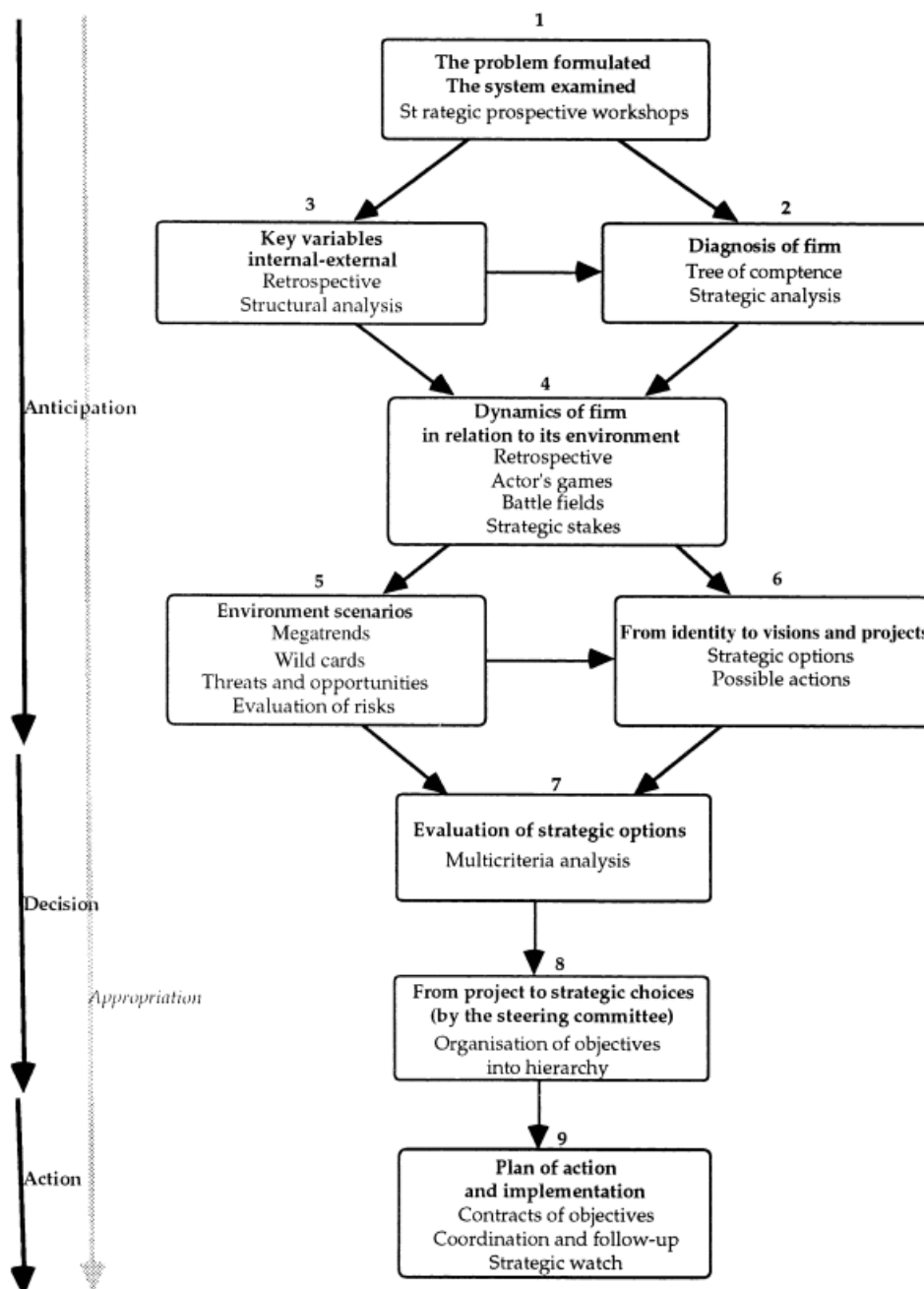


Figure 4 Complete Process of Scenario Analysis (Godet, 2000)

A tool is only as good as the users' proficiency with it, which suggests that when users are unfamiliar, and not trained in using this method, the results could lead into a different direction than it would have been if an experienced user did the same. As discussed by Godet (2000), the use of scenarios creates a common language which helps a team of executives to have the same focus and the same vision. Designing a Business Model has the same effect, and will get everyone in the company on the same page (Osterwalder & Pigneur, 2009). When considering the nine steps of scenario analysis as described in Figure 4, commonalities can be found in designing a Business Model, Setting up a Roadmap, and the Market Disruption model, which will be discussed in the next section. An overview of the commonalities will be discussed in chapter 2.9 (De Reuver, Bouwman, & Haaker, 2013).

Business Models and Scenario Analysis cannot randomly be combined, like Bouwman and Van der Duin (2003) state. These methods should have the same level of abstraction, and have the same unit of analysis. This statement implies that the combination of scenario analysis and Business Models in the Business Model Stress Testing tool should meet the same requirements. The use of a financial scenario, like a financial crisis in a country, and a Business Model from a company like Shell, that only sells their products in that country and does not have any other business, is not relevant since the level of abstraction is inconsistent. The scenarios which are selected for the company should be in coherence with the level of abstraction for that company, e.g. A test for the bakery from the neighbourhood should not include a scenario in which there will be an oil crisis in Africa, but should focus on competitors in a 10 km radius.

Selecting the correct scenarios is an essential step for the Business Model Stress Testing Tool. When considering the focus of the SME's, the focus should be related to the market and the organisation, since Dodge, Fullerton, and Robbins (1994) suggest that the Business Model depends solely on the competitive environment. These insights lead to the focus of the dynamics in the market, the market dynamics could be used as scenarios. The Market Dynamics, as stated by Christensen and Raynor (2003), are discussed in the next section, in order to make clear why these scenarios are helpful for SME's.

Scenario Analysis is used by big companies to create complete worked out plans for the uncertain future, but in this research, and especially for the Business Model Stress Test, the method is used for structuring the confrontation between the Business Model and Scenarios. The scenarios that are chosen during the workshops, can identify the focus of the company, e.g. strategically or short-term focused, and how this relates to their capabilities, i.e. Agility, Development approach, i.e. different Alternatives, and the viability of disruption strategies. These concepts are discussed later in this Chapter, but in Chapter 6 – Discussion, Conclusion and Recommendations, scenario analysis will support the main findings and conclusions by linking the different concepts together.

## 2.6 Market Dynamics

*The previous sub-chapter on Scenario Analysis stated that the market dynamics can be used as input for Business Model Stress Testing. The next sub-chapter will discuss the ability to deal with highly dynamic markets. This sub-chapter introduces Market Dynamics, discusses Market Position and the Innovation Disruption Model.*



### 2.6.1 Market Dynamics

In Macro Economic Theory, the concept of Market Dynamics is a fundamental concept (Sloman & Garrett, 2013). Market Dynamics describes the relationship between supply and demand with respect to the price of the goods or services. The result of the status of the market, considering supply and demand, can be either static, or have a very dynamic character. If a single company sells a single product every day, this could be stated as a static market, while a very dynamic market has high fluctuations and many adaptations between supply and demand.

Market Dynamics does not only relate to the fluctuations of supply and demand, but also to the level of restrictions put on the market, like regulations and industry norms, or rules (Shaffer, Quasney, & Grimm, 2000). If the government strictly controls the market, like the gambling industry, the supply and demand could fluctuate heavily, but the market itself will not fluctuate. This reasoning can also be applied if strict rules like the ISO-norms control the market, which could result in an innovation barrier. Market Dynamics is not only related to supply and demand, but also to restrictions and regulations, which can distinguish a market as either static or dynamic.

### 2.6.2 Market Position

Podolny (1993, p. 830) conceptualizes the market as *“a structure that is socially constructed and defined in terms of the perceptions of market participants”*. This indicates that, the status a company acquired, is the sum of all perceptions combined, such as with the status of a celebrity. The celebrity has to show themselves to the masses, via e.g. movies, events, TV, in order to get attention, which results in new contracts. The level of proactiveness determines the status for the celebrity, while the level of proactiveness of a company translates into premium level, since proactive firms are mostly seen as the premium brand (Lumpkin & Dess, 2001). Since these companies need to invest in research and development, marketing, better equipment to use new techniques, the result is a higher price on these products. This proactive attitude is a different approach than copying what has been done before. Companies that function differently have different needs, but also the position of the company regarding chance and threats relates to different needs. The company that is an important player in an industry is known as the incumbent, and the company that has a new product and wants to enter this market is known as the entrant (C. M. Christensen & Bower, 1996). When considering the market disruption model, the entrant, such as UBER, can have a value proposition that can completely disrupt the current incumbents: the car industry. With their special build maps, where you can see where people are and where they want to go, autonomous cars could change the car industry as we know it today, i.e. instead of buying a complete car and driving yourself, you pay for a service that will bring you from location A to location B.

Different companies in a single market could approach the market from different angles, because the perception is different, or because the product requires a different approach. The market for “men that shave” will be approached differently by a barber shop when compared with a company such as Gillette, even though both target “men that shave”. The dynamics of the market also have an effect on the innovative character and the flexibility of this market. The Market Disruption model of Christensen and Raynor (2013) incorporates the performance of the product, total time after product introduction, and non-consumption of the product. This model describes what the different strategies are when these three concepts are taken into account and will be discussed further in the next sub-chapter.

### 2.6.3 Market Disruption Model

Innovative technological change is the main reason for market change in the Innovation Disruption Model by Christensen and Raynor (2003). This model proposes three different strategies for companies to take. In Figure 5 the different dimensions are shown, together with the three different strategies, Sustaining strategy, Low-end disruption and New-market Disruption.

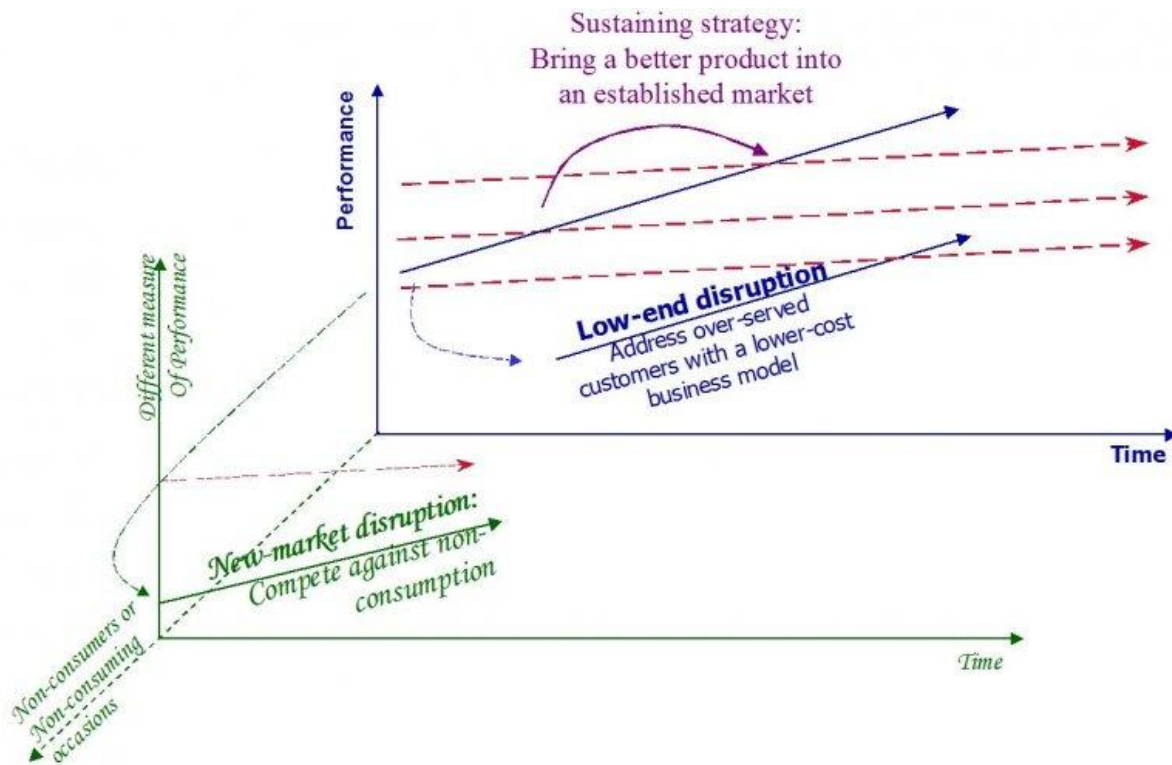


Figure 5 Innovation Disruption Model (Christensen, 2014)

When looking upon the time and performance axis, there are two strategies which can be chosen, the sustaining strategy and the low-end disruption strategy. The sustaining strategy is incremental innovation, and improves the current products to increase performance, e.g. the iPhone 1,2,3,4,5 and 6. The product does the same thing, only with a few new additions which increase the performance. The low-end disruption strategy is to supply the users who would like to use the product, but do not want to pay as much as it costs. The example of a low-end disruption strategy could be the difference between premium cars, e.g. Mercedes and Ferrari, and the low end cars, e.g. Daihatsu and Toyota. Multiple strategies at the same time are also possible. When looking at the car manufacturer Volkswagen, they have two strategies at the same time, the sustaining strategy for their Volkswagen brand, and the low-end disruption strategy with Skoda.

The last axis, the z-axis, represents the non-consuming occasions, or non-consumers. This dimension indicates the level of non-consumption, and the competition is the not buying, or consuming, a product and therefore is an indicator for the last strategy, New-market disruption. This strategy can be used when a product is performing well in the current market, a certain need is fulfilled, but another market could also benefit from this product and is not yet introduced. An extreme example for this strategy can be a new invention, which nobody has heard of yet. The competition is not a competitor, but the low level of awareness of a company and its product is the biggest competition,

since they do not have a track-record, have low trust, or have no money for marketing campaigns, etc.

These three strategies can be used as input for the Business Model Stress Testing tool. The scenarios that will be used for the BM Stress test must be chosen in such a way, that the correct strategy to take would be one of the three strategies of the innovation disruption model, i.e. Sustainable-, Low-end- or New Market strategy. This supports the user of the Business Model stress Testing Tool to identify differences in the scenarios and make better choices, during the workshop, for the company. Questions like, what if we continue like this, what if we focus on the bottom of the pyramid, and what if another market has interest in our core product, can be answered when the Business Model Stress Testing Tool is used. The next questions are, what if the company must change, how long will it take for the company to adapt, and how will they adapt considering the market needs at this moment and in the future? The next chapter will relate to these questions by discussing the concept of Agility.

This chapter discusses Market Dynamics, Market Position and the Market Disruption Model, which is a considerable aspect of the eco-system description. This description along with the different strategies companies could pursue, can be used as scenario input for the Business Model Stress Test, in order to test if the Business Model is viable. The concepts of this Sub-Chapter are used in the Sixth Chapter, Discussion, Conclusions and Recommendations, in order to link the eco-system, or market dynamics, to the agile concept, which is discussed in the following section.

## 2.7 Agility

*The previous sub-chapter discussed Market Dynamics, but as stated in the introduction, not all companies can cope with the continuous change. The companies that can cope with this change, have the ability of Agility. The concept of Agility is discussed in this section, which presents an overview of the current knowledge on Agility. The Organisational Life Cycle describes the different phases of organisations, irrespective of their capabilities, but the Lean Startup Method describes how startups can become more agile.*

Agile manufacturing was the next concept that would be able to compete with the constant threat of mass production-based corporations (Goldman, 1994). This concept was the result of a study of, what it would take for the U.S. industry to regain their global manufacturing competitiveness by the early twenty-first century. Through time, the concept of agility disseminated to different areas, such as Supply Chain (Mason-Jones & Towill, 1999), Software (Conboy & Fitzgerald, 2004; Cunningham, 2001), organizational strategic agility (Sambamurthy, Zmud, Rai, & Fichman, 2005), but also led to the concept of Business Agility as defined by Van Oosterhout (2010). The definition of Business Agility as stated by Van Oosterhout (2010) is:

***Business Agility*** is the ability of an organization to swiftly change business and business processes beyond the normal level of flexibility to effectively manage highly uncertain and unexpected but potentially consequential internal and external events, based on the capabilities to sense, respond and learn.

Business Agility as defined by Van Oosterhout (2010), will be used as agility in this research. The agility of a company is the capability to sense, respond and learn, and swiftly change the business in order to match the need of external forces. Companies should use the agile perspective as Ktata and

Lévesque (2009) propose in their paper on agile developments. They state that projects should be dealt with in an agile manner in order to survive the 21<sup>st</sup> century. The steering committee, the management team or founders of the company, should aim for a shared vision and give support via tools and expertise in the decision making process. As discussed in section 2.3 – Business Model Tooling, the decision making process can be positively influenced by the use of Business Models (Trimi & Berbegal-Mirabent, 2012). Combining Business Models with Agility is what Bouwman et al. (2015) did, in the paper “*Business Modelling Agility: Turning ideas into business*”.

The paper of Bouwman et al. (2015) describes an Agile Business Model Innovation method that interacts closely with demand, in order to grow operations and quickly scale-up. This lightweight method uses the agile perspective of Ktata and Lévesque (2009), and is tested on 4 different cases with a focus on Knowledge Intensive Services. By using the three Innovation Disruption Model situations, as discussed in section 2.6.3, the benefit of the method is measured with feed-forward objectives, and feedback of the strategic position on operational and economic performance.

Agility is implicitly incorporated in the Business Model Stress Testing tool, in the sense that the method let the participants think about the external environment, and how that could influence the company. Companies should become more agile in order to cope with the continuously increasing market pressure, which can be dependent on the Organisational Life Cycle stage. The company life cycle stage, or, Organisational Life Cycle stage, will be discussed in the next section.

## 2.8 Organisational Life Cycle

*The previous sub-chapter discussed the concept of Agility and how companies can change and adapt to changing markets, regardless of the Organisational Life Cycle stage. The next section will combine all the described literature in order to get a short but complete overview of the identified research areas. In this sub-chapter, the Organisational Life Cycle will be discussed in order to understand differences between companies, with a special focus on the start-up stage, by discussing the lean start-up method.*

### 2.8.1 Organisational Life Cycle

Organizations experience different phases in their existence and follow a predictable pattern which can be described, but academics differ in the number of stages the organization will experience (Dodge et al., 1994). The stages, as described by Dodge et al. (1994), are described by three characteristics;

- 1) *Sequence of events that describe how things change over time*
- 2) *A hierarchical progression that is not easily reversed*
- 3) *A composite of a broad range of organizational activities and structures*

When taking these 3 characteristics into account, we use the three different stages of Smith, Mitchell, and Summer (1985): Inception, High-Growth and Maturity. The different characteristics of every stage, support the clear categorization of the organization. To make clear that there are differences in how companies take decisions and respond to market changes, we will investigate companies both in the inception stage, also known as the start-up stage, and the maturity stage. These results could give an indication of how the Business Model Stress Testing tool should be optimized for which stage. These different foci will be discussed in the Methodology Chapter.

In section 2.2 – Business Models, the relationship between Business Models and the Organizational Life Cycle as stated by Andries and Debackere (2007) is slightly discussed. They concluded that the Business Model of an organisation should adapt according to the current stage of the Organizational Life Cycle. This would suggest that the Business Model of a Startup is different, when compared to an identical, but mature organisation. In the Introduction, section 1.3.1 – Sub-Research Questions, the question arises that differences between different stages could affect the use of Business Model Tooling. It is made clear by Trimi and Berbegal-Mirabent (2012) that the Business Model is different in different stages of the Organisational Life Cycle, i.e. startup and mature businesses differ in Business Model, but the use of Business Model Tooling, e.g. Business Model Stress Testing, could be the same for the Startup and the Mature organisation. This could be clarified with the following example, transport in different life phases, e.g. child and grown-up, differ, but the one use of transportation, such as the use of a bicycle, could be the same. They also pose the question “*Is there any connection between firm performance and how the Business Model is Designed?*” (Trimis & Berbegal-Mirabent, 2012, p. 462). This is not a question that could be answered with a Master Thesis, but this Thesis could be the initial start for future research on Business Models and the relation with firm performance. A new method of starting up a business, and running a business, is the lean start-up method of Ries (2011) which will be discussed in the next section.

### 2.8.2 Lean Start-up

The Lean Start-up has five core principles, which are, *Entrepreneurs are everywhere, Entrepreneurship is management, Validated Learning, Innovation Accounting and Build-Measure-Learn*. These principles are the foundation of the new method of running a business, with a clear focus on start-ups. This method aims to create a business that responds quicker and adapts faster to the market.

The focus of the lean start-up method is the continuous cycle of innovation. This is possible due to the followed method, which clearly describes a set of steps that supports the decision making process, rather than to guess which direction to follow. The following scheme, or process, in Figure 6, has been set up by Ries (2011).

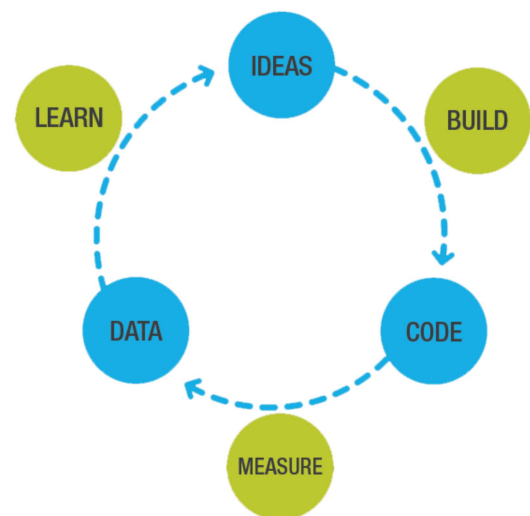


Figure 6 The lean startup method (Ries, 2011)

This method describes how an entrepreneur can change his idea into a business by giving the entrepreneur certain tools which help developing his idea into something the market needs. The idea has to be built up and has to be taken apart in order to “code” the idea into measurable data. This data is feedback from the market and this will show if the entrepreneur is correct about his idea being accepted, or that something has to be adapted before the market accepts this idea.

The mind-set of a lean start-up entrepreneur could be totally different, when compared with a traditional entrepreneur. The focus for the lean start-up is to completely understand what the market needs, and if the market changes their attention, to adapt the company in such a way that the company, or product, is attractive for the market again. Lean start-ups practice something called

agile development, which originated in the software industry(Blank, 2013). Some entrepreneurs need to improve the Agile capability, in order to survive or improve their business, which is taught in the book of Ries (2011).

In this section the concepts of Organisational Life Cycle and Lean Startup were discussed, in order to understand the differences in life cycle stages, how companies can be categorized, and that the agile capability can be taught. The different Life Cycle stages are used to distinguish companies, in order to identify differences in the use of Business Model Stress Testing. The Lean Startup method teaches start-ups how to develop their agile capability, which suggests that Business Models could be developed in an agile manner.

## 2.9 Conclusion

*In this section concepts from the previous chapter are combined in order to relate the different elements. This concluding sub-chapter is used in the Sixth Chapter – Discussion, Conclusion and Recommendations to review the current theories and concepts with the executed research.*

The scenario model of Godet (2000) can be used as the foundation for combining different theories and concepts. The first section of the scenario model has commonalities with Business Model Tooling, as mentioned in section 2.5 Scenario Analysis. The different steps taken when designing a Business Model are the same as the initial steps of the process of scenario analysis, which is shown by the blue oval in Figure 7. The final steps of the process of scenario analysis are shown within the red oval in Figure 7, and can be compared to the Business Model Roadmapping tool. In section 2.6.3, the Market Disruption Model, discusses the different strategies as scenarios, and is the fifth step of the scenario analysis process, as shown in the green oval in Figure 7.

The aspects of Agility and Market Dynamics are less visible, but are key when considering the Business Model Stress Test. The aspect of Agility is to monitor the market constantly, and if an unwanted discrepancy appears, the company can change and adapt in order to fit the market. The Market Dynamics are input for the Business Model Stress Test, as scenarios, and are related to Agility and the Organisational Life Cycle. Agility is a capability and Market Dynamics describes the nature, status or behaviour, of a market, and how dynamic or static a market can be. Scenario Analysis is a tool that can use the market dynamics as input, i.e. step 4 in the analysis “*Dynamics of firm in relation to its environment*”.

The concept of Organisational Life Cycle is an input variable for selecting companies for the experiment, due to the unknown effect on the use of the Business Model Stress Test by different Life Cycle Stages. In the next chapter, the Third Chapter - Methodology, we describe how companies in different Organisational Life Cycle Stages, and Familiar or Un-familiar with Business Models, are researched in order to understand how they use the Business Model Stress Test. This chapter created an overview of the current knowledge on the concepts of Business Models, Scenario Analysis, Market Dynamics, Agility and Organisational Life Cycle.



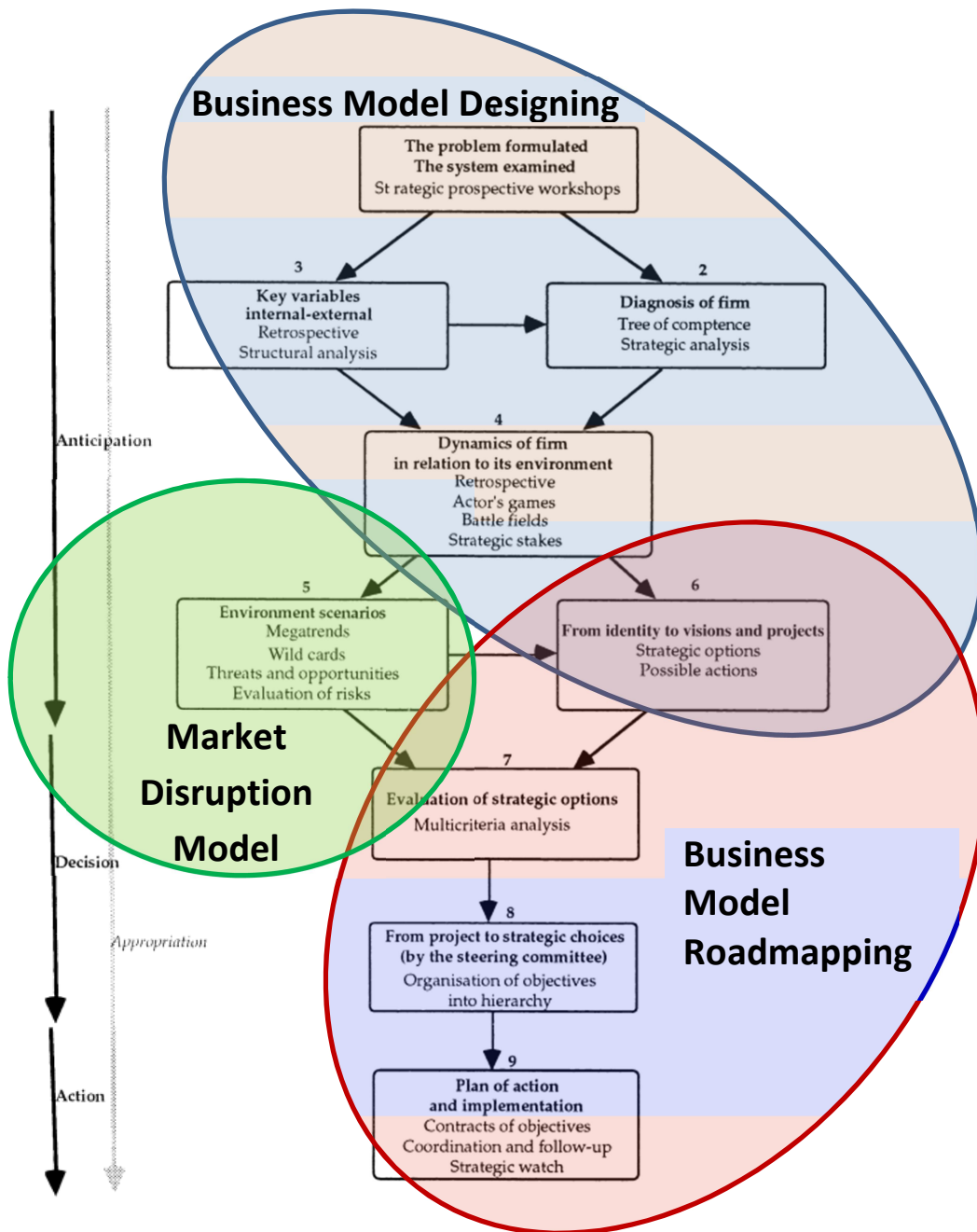


Figure 7 Scenario Analysis Compared with Business Model Tools and the Market Disruption Model (Godet, 2000)

### 3 Methodology

*This is the Third Chapter, Methodology. The Methodology describes the research structure in order to answer the research questions from the First Chapter, based on the body of knowledge from the Second Chapter - Literature Review. The approach and methods that are used in order to carry out this research, are described in this chapter, and are used to obtain the results of Chapter Four and do the analysis in Chapter Five. The Methodology describes the Research Design, Research Approach, Data Collection and in the last section Data Analysis is discussed.*

#### 3.1 Research Design

The initial step in research is to choose a research design that fits the research objective. The research objective determined which design was chosen, in order to correctly carry out the research. An essential element of the research objective is, *“By observing the users using the tool in a workshop setting, the user requirements of the Business Model Stress Test can be found. The requirements will lead to a set of recommendations on how to improve the BM Stress Testing tool”*. The next section will specify which design was chosen and why this research design fitted the research objective best.

##### *Which research design fits this research?*

The question that needed to be answered is, *How do SME's use Business Model Stress Testing?* In order to obtain this information, the use of the Business Model Stress Testing by certain users was observed in a pre-arranged setting. This research cannot be labelled as observational research, because the “treatment” or “assignment” is controlled by the researcher to get comparable results, instead it is an experimental research (Rosenbaum, 2002). By the use of experiments, researchers try to obtain information on a specific topic, i.e. experience, interaction, learning, added value, etc. (Campbell, Stanley, & Gage, 1963). Campbell et al. (1963) describe 16 experimental designs against 12 common threats to valid inference.

The One-Group Pretest-posttest design has been chosen and focusses on a single group that will undergo an experiment. Information has been gathered before and after the experiment, to determine the effects of the experiment on the group. *“How do users make use of the Business Model Stress Testing tool?”* is the focus of this research. But the effect of the Business Model Tools and the experiment can have different influences on different groups, which could lead to new and unforeseen insights. This is nice-to-know information, but will not be in the scope of this research, and will be stated as future research opportunities.

Two variables are subject to research, Business Model Tooling and Organisational Life Cycle, with both having two possible outcomes, Familiar and Not-Familiar for Business Model Tooling, and Start-up stage and Mature stage for the Organisational Life Cycle respectively. The number of participating companies was therefore four, however five experiments have been executed, which will all be discussed in the next section. Miles, Huberman, and Saldaña (2013) suggest five rich cases to research, for Qualitative Sampling, more than five cases would make it too complex.

In this research, the single group is the single company, and the experiment is the workshop with Business Model Stress Testing as the “treatment”. Each experiment combined with three observations, is a single case, one Qualitative Sample.



Questionnaires were used for the first and third observation bot to identify the experimental factor, and to collect data in a standard format, which can later be related to other participants if necessary. The information is qualitative and quantitative in nature, with qualitative questions, such as “What is your expectation of the workshop?”, and quantitative questions such as, “On a Scale of 1-10, how innovative is your Company?”

The experimental factor was adjusted to the level of knowledge on Business Models in order to get the best results. The reason for adjustment was the gap of experience between different companies, and if the experiment would be standardized, the experiment would be useless for some companies, due to the lack of understanding. During the experiment, the group was observed to gather information on the use of Business Models and the Business Model Stress Testing. After the experiment, a second measurement, the post-questionnaire, was used to determine the impact of the Business Model Stress Testing tool.

In Table 3 the original overview of the One-group Pretest-posttest Design is presented, together with the sources of invalidity. This design is the basis for the altered design for this experiment, discussed in the following section.

**Table 3 Quasi-Experimental Design, adapted from (Campbell et al., 1963)**

	Sources of Invalidity											
	Internal						External					
	History	Maturation	Testing	Instrumentation	Regression	Selection	Mortality	Interaction of Selection and Maturation, etc.	Interaction of Testing and X	Interaction of Selection and X	Reactive Arrangements	Multiple-X Interference
<b>Pre-Experimental Design</b>												
2. One-group Pretest-Posttest Design <i>O X O</i>	-	-	-	-	?	+	+	-	-	-	?	
<i>O = Observation/ Measurement</i>	Minus(-) indicates a definite weakness											
<i>X = Experimental event</i>	Plus(+) indicates a controlled factor											
	Question mark(?) Indicates a possible source of concern											
	Blank( ) indicates a not relevant factor											

When considering Table 3, the *O* in the bottom left cell, represents a process of observation or measurement, while the *X* represents the exposure of a group to an experimental variable or event. The two observational moments are the questionnaires that all participants of the experiment, fill in, while the experimental event is the workshop. During the workshop the users were observed, to gather additional information. Therefore an additional *O*, in the second row, below the *X*, is necessary to describe this experiment.

### 3.1.1 Altered Experimental Design

The addition to the One-group Pretest-Posttest design is the observation during the experiment. Next to the observations during the experiments, the total number of completed experiments is five, with four different companies. In Table 4 the overview of the differences in companies that

participated in this research is presented. Familiarity with Business Model Tooling is confronted with Organisational Life Cycle, these are the two most important factors that influences the Business Model Stress Test, as discussed in Chapter 0. The differences between the companies are the subject of interest in this research, due to the differences, the effect of the Business Model Stress Test is analysed.

**Table 4 Small and Medium Sized Enterprises – Business Model Familiarity confronted with Organisational Life Cycle**

<b>Organizational Life Cycle</b> <b>Business Model Tooling</b>	Start-up stage	Maturity stage
Un-familiar	Company 1	Company 3
Familiar	Company 2	Company 4

During the experiments, information has been collected via observation. This experiment can be characterized as a field-experiment (Harrison & List, 2004). The field experiment is done in combination with a pretest-posttest research design. The experiment has been repeated five times, three times with different companies, and two times with the same company. In Table 5 the overview of the workshops, in relation with the criteria per company and the Experimental Design, is given. Workshop 1 and 4 are the same company, but different participants participated during the experiments. The workshops were adapted to the correct user-level, the user-level of the participating participants in the workshop, as discussed before, however this variable is controlled and did not bias the experiment.

**Table 5 Overview of Workshops and Experimental Design**

<b>Workshop</b>	<b>Company with set criteria</b>	<b>Experimental Design</b>
1	Familiar with BMT and Start-up(1)	$O_0$ X $O_6$ $O_1$
2	Un-Familiar with BMT and Start-up	$O_0$ (X) $O_6$ $O_2$
3	Un-Familiar with BMT and Mature	$O_0$ (X) $O_6$ $O_3$
4	Familiar with BMT and Start-up(2)	$O_0$ (X) $O_6$ $O_4$
5	Familiar with BMT and Mature	$O_0$ (X) $O_6$ $O_5$

The four companies, the workshops, the questionnaires, and the observation during the workshop as well as the other variables are combined in the codified experimental design, shown in Table 5. But the codified research design is somewhat abstract and not specific on the required content. The complete overview of this research, thus, the information flows, the different forms of observations, the variables measured and when all the different steps were taken, are combined and represented in Figure 8. The different characteristics per company, Business Model Familiarity and Organizational Life Cycle stages, are important criteria and are used as initial input for the information flow. More characteristics are identified before, after and during the Stress Test, which will be discussed in coming sub-chapters. Every outcome in each workshop, will indicate how a specific “group” uses the Business Model Stress Testing, which will lead to recommendations for the Business Model Stress Testing tool.

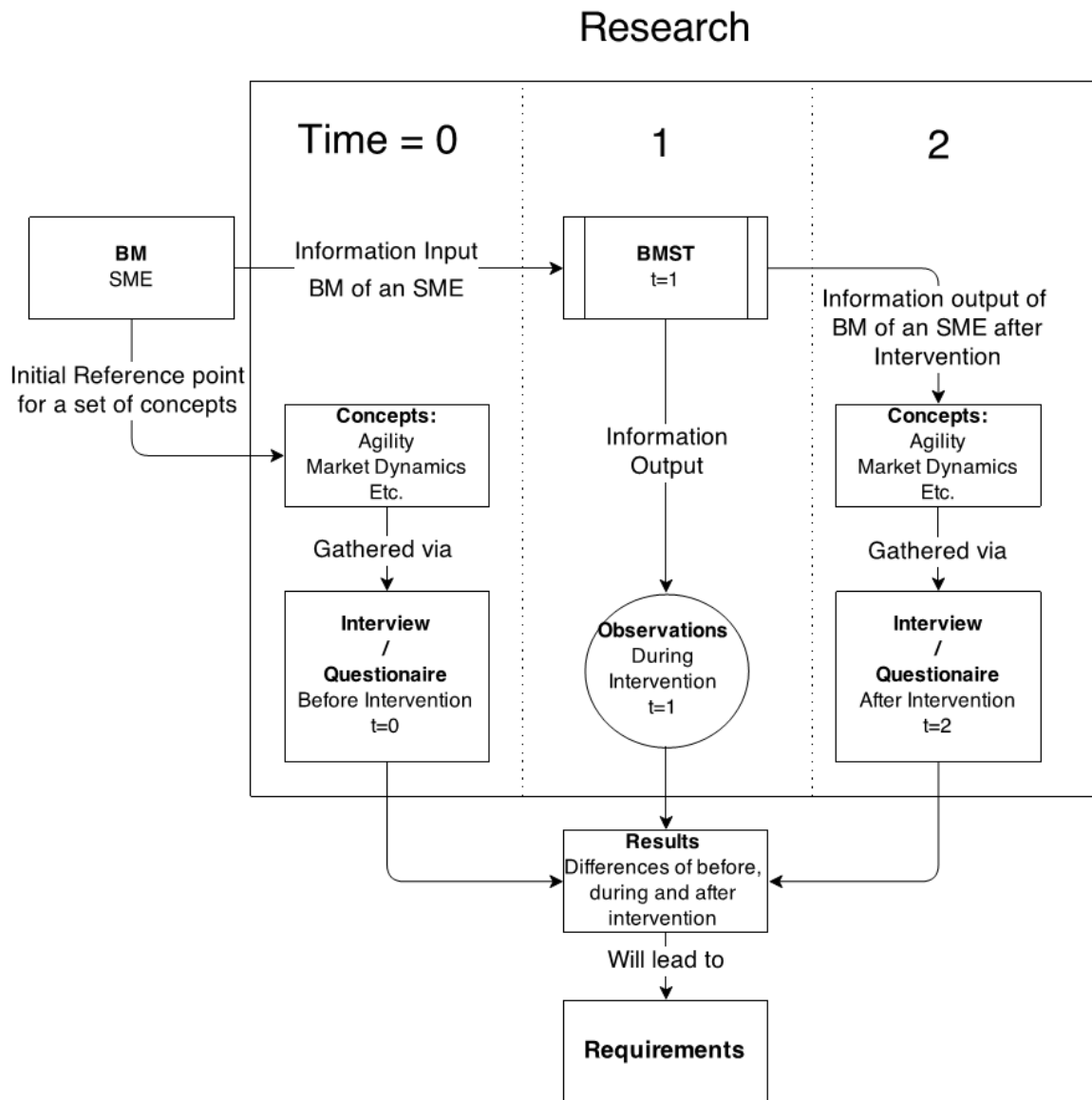


Figure 8 Research Overview

### 3.1.2 Validity

Experimental Designs must be tightly controlled in order to have a high level of internal and external validity (Campbell et al., 1963; Shadish, Cook, & Campbell, 2002). The outcome, effect, is a logic result of the experiment, cause, and interpretability of the experiment, describe the internal validity, while external validity is described by the generalizability of the outcome of the experiment. Repetition of the experiment, and getting the same results is due to high internal validity. If the experiment has high external validity, the effect the treatment causes will most certainly have the same effect outside the experiment constraints. If the experiment is not controlled correctly, the outcome has low validity, since it is not clear which variables were influencing the outcome, therefore the interpretability is low, the cause and effect of the experiment are unclear and generalizing the outcome is not possible.

## Internal Validity

*The eight threats on internal validity, as Campbell et al. (1963) described them, are discussed in the following section. The eight different threats are, History, Maturation, Testing, Instrumentation, Experiment, Differential Selection, Experimental Mortality and Selection-Maturation Interaction.*

The (1) history, or time, between the observational moments and the experiment could pose a problem in the initial research design as stated by Campbell et al. (1963). In this experiment, the observational moments influenced the understanding of the Business Model Stress Testing tool, what the tool does, what result will be, etc. But the understanding of the Business Model Stress Testing tool will not change the actual use of the tool. One could explain how a boat is used, but to be able to use that boat, one has to get experience<sup>1</sup>.

The (2) maturation of the experiment was a serious problem during the experiment. During the workshop people got tired, hungry, thirsty, etc. especially when they had to build their BM in the morning. The facilitator sensed the general energy level of the group during the workshop, while also posing questions to get feedback in order to mitigate this risk as much as possible.

Testing (3) could influence the outcome of the experiment, e.g. taking an intelligence test for the second time could give a result of 3 to 5 IQ points more when compared to the initial test (Campbell et al., 1963). In this research all the participants got questionnaires before the experiment, but this was focused on getting information, and not on using Business Model Tools. The questionnaire did not trigger participants to study extra materials before the workshop.

Instrumentation (4) is controlled by having digital questionnaires that delivered hard data, which is compared by a single person. The observation during the experiment was both direct and indirect, by recording and taking notes during the workshop. Other instruments that were used during the experiment were, Post-its, Pens, Flipovers, etc. and did not bias the outcome of the experiment.

In the experiment (5) statistical regression has not been an issue, since participants were not selected based on extreme scores.

The selection of groups based on equal characteristics but different experimental variables, i.e. familiarity of Business Model Tooling and Organisational Life Cycle Stage of a company, was an issue. To select the groups that fitted perfectly in the predefined characteristics was not possible. To lower the (6) differential selection threat, the characteristics of the company had to be as close as possible to the predefined characteristics. Characteristics such as company industry, geographical area, age of participants, background and level of education, were extra selection criteria, that had to be as similar as possible, in order to get the highest level of comparability, and the lowest amount of bias.

The total duration of the experiment was 4 or 8 hours, without participants drop out. The questionnaire was sent one week in advance for every group and the second questionnaire varied between one hour and three days before it was sent, with two participants did not sending in the before or after questionnaire. The groups that have been observed did not change and the effect of these two participants on the result is low, which results in a controlled (7) experimental mortality threat.

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<sup>1</sup> Special cases, such as naturals, are left out of this reasoning.

The (8) selection-maturation interaction, is when the results of groups change during the experiment, and the pre-, post-test show different results due to an interaction of a selection variable. This interaction has occurred in this research, but did not influence the experiment, or the results, enough to take counter measures.

### *External Validity*

*Four threats on external validity are discussed in the following section. The four threats are, Reactive or Interaction effect of testing, Interaction effects of selections biases and the experimental variable, Reactive effects of experimental arrangements and Multiple treatment interference.*

The (9) reactive, or interaction effect of testing states that the universe is not pretested, and as a result, cannot be generalized, since the pre-test, or questionnaire, might have influenced the experiment group. The pre-test might have influenced the experiment, since specific information is given in order to gather the correct data. The information can be compared to homework that has been send to comparable workshops, which brings the participants at the same level. To mitigate this threat as much as possible, the information given in the questionnaire is kept as minimal as possible. This threat does affect the external validity a little.

(10) Interaction effects of selection biases and the experimental variable has occurred during this research. Interaction effects between, average age of the participating group and the use of the Business Model Stress Test, were visible during the experiment. Other interaction effects, between the selection biases and the experimental variable, have not been identified.

The (11) reactive effects of experimental arrangements did not occur during the experiment. The experiment had a similar arrangement as normal workshop would have been.

The (12) multiple treatment interference has not occurred in this research.

## **3.2 Research Approach**

The research approach discusses the core elements on which this research is based, the companies and the workshop. The data collection, due to the high amount of different sources, is discussed in the next section, 3.3 – Data Collection. In this section the initial plan and reality of how the companies were selected are discussed first. The second topic is the workshop, and discusses what the boundaries, structure, methods and aim of the goal of the workshop have been during the workshop.

### **3.2.1 Companies**

The differences between companies are the core of this research. The plan of selecting companies and persuading them to participate in this research is discussed first, then the reality, of what actually happened is stated.

#### *The Plan*

The groups for the experiments are the different companies. The company discrimination is, as discussed in the previous section, based on two variables, familiarity with Business Models, and Organisational Life Cycle stage. The initial general selection criteria for the companies in this research are stated in Table 6.

Table 6 General Criteria Company Selection

Criteria	Reason
Same industry – ICT	ICT industry operates with high level of abstraction
3 to 4 participants per workshop	Facilitator stated this is essential for the workshop to be effective
Average age employees, per company, within 5 year range	Comparable participants between companies
Decision makers join the workshop	Decision makers are the main users for this tool
Higher education degree	Abstract level thinking is required for the workshop
Companies that want to change, need strategic insights, and need help	<ul style="list-style-type: none"> <li>- Companies that do not need help, are not interested in getting support on something they already have, know and understand</li> <li>- Because the Business Model Stress Test would normally not be used by companies that do not want to change</li> </ul>
Various backgrounds in the workshop(Finance, Business, Technology, HR)	Various backgrounds will lead to various perspectives

The specific criteria per company are presented in Table 8, which indicates there are differences in selecting mature and start-up companies. The different reasons for selecting on these criteria are listed in Table 7.

Table 7 Criteria for selecting specific companies

Criteria	Reason
Size # employees	<ul style="list-style-type: none"> <li>- Start-ups are small in size and therefore flexible, more than 20 employees would negate this flexibility</li> <li>- Mature companies with less than 20 employees would be considered too flexible</li> </ul>
Company Life	<ul style="list-style-type: none"> <li>- Start-up, or inception stage, could be passed if the company exists for more than three years</li> <li>- A company in the high-tech industry could reach the mature stage in a matter of years(Product-Arts, 2015)</li> </ul>
Sales Growth	<ul style="list-style-type: none"> <li>- Sales growth of Start-ups can greatly vary</li> <li>- Stated by Miller and Friesen (1984), mature company has &lt;15% Sales -growth</li> </ul>
Reason for change	<ul style="list-style-type: none"> <li>- Start-ups want to grow</li> <li>- Mature companies want to change and prepare for the future</li> </ul>

Table 8 Focused selection criteria per Company

Criteria	Start-up	Mature
Familiarity with BM	Unfamiliar	Unfamiliar
Size # employees:	< 20	+20
Company life:	< 3 years	+ 5 years
Sales growth:	Unknown	< 15%
Reason change:	Wants to grow	Wants to change and prepare
Familiarity with BM	Familiar	Familiar
Size # employees:	< 20	+20
Company life(years):	< 3	+ 5
Sales growth:	Unknown	< 15%
Reason change:	Wants to grow	Wants to change and prepare

In order to get companies to participate in this research, multiple strategies can be used. The list of strategies are stated in the following list:

1. Look for companies in the researchers' first line connections, i.e. family and friends.
2. First line connections of the researcher recommend the researcher to a familiar company or association of theirs, with referral.
3. Advertise the workshop in media to get interested companies.
4. Select companies via linked-in that fit the criteria and e-mail, or cold-call, these companies and convince them to participate in this workshop.
5. Combine research, and use results for both research studies.
6. Visit YES!Delft and ask companies to participate
7. Use (guest)lectures from Ready to Startup, to get in contact with companies.

### *Reality*

Life teaches you, that things always turn out differently than you initially expect them to be. It was harder to convince companies to participate than initially thought. As a result the companies that were selected did not completely fulfil all the characteristics that were stated upfront. Finding and contacting companies is stated in this section, the results of the company fit with the initial criteria, are stated in Chapter 5.5 – Discussion, Conclusions and Recommendations.

Finding companies was done via the google search engine, with key words as “ICT Delft”, “ICT Haaglanden”, “High Tech bedrijf Delft”, “High Tech bedrijf Haaglanden”, “Startup Delft”, “Startup Haaglanden”, etc. The approach was a Search, Find and Contact Strategy<sup>2</sup>. The selection was based on the website of the company, and the Linked-In page of the company. After an initial screening, based on the criteria, the company, and the potential employees to contact, would be put into a database. After the screening, a set of companies were contacted via the employees. Contacting would be done via e-mail, telephone, or Linked-In if the person is in the Researchers personal network.

The second strategy that has been used is getting contacts via “MKB – Nederland”. The contact person is an acquaintance of the researcher, and proposed a broad range of companies that would fit the research criteria. The acquaintance introduced the researcher, or sent e-mails, to companies that were interested in the workshop.

### **3.2.2 Workshop**

To make clear what the approach of the workshop was during this research, the different elements, related to the workshop are discussed. The boundaries, structure, method and aim of the workshop are discussed in this section.

The workshop is a key element in this research and was facilitated by a professional to ensure the quality of the workshop. The professional is an expert in the field of Business Models and has years of experience with facilitating similar workshops. The second reason, to include a professional facilitator in the workshop, is that the researcher could solely focus on observing the participants and the workshop, which lowered the chance of missing something. The results of the workshop were highly valued by the companies, and this structure guaranteed the best possible result for the companies and for this research.

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<sup>2</sup> Strategy was taught with the course Ready to Startup from YES!Delft

Setting up the workshop boundaries was done after consulting the facilitator, on the preferences he has during the workshop session and what he would like to see as input before the workshop commenced. An intake with the contact person of the group was preferred, if information from the questionnaire was insufficient. The pre-test, the before questionnaire, is discussed in the next section, but the goal of the pre-test was to gather information on the status quo of the company, in order to relate the new effects to the “treatment”, the Business Model Stress Test. Some elements are explanatory, which could influence the workshop, and the experiment, positively. The questionnaire gave a general overview of the group, and was generally sufficient for the facilitator to work with. In one case the facilitator needed some extra input to understand the general business and what their focus was.

The structure of the workshop followed three phases, in which the Business Model Stress Test is the core phase. The workshop started with a general introduction of the goal of the workshop, in order to set the expectation level, and to make sure all participants understand what is expected of them. Introduction of the participants, facilitator and observer was done before the second phase started, the Business Model Stress Test which is discussed in the next section. The last phase is the evaluation of the workshop, discussed after the second phase.

The Business Model Stress Test followed a six step plan in order to get the best possible results. The different steps are explained in the coming section, but are listed as they were taken during the workshop:

1. Selection and description of Business Model
2. Selection of uncertainties
3. Mapping of Business Model to uncertainties
4. Heat Signature
5. Analysis
6. Conclusion

**Selection of the Business Model Ontology** is linked to the type of company, as discussed in Chapter 2, the CANVAS would better fit a workshop that is focussed on a single firm, while the STOF could have better results when the focus is more on a large network and ICT intensive platform. The Stress Test is Business Model Ontology independent, which indicates that any Business Model Ontology can be used as input. **The description of the Business Model** is filling in the Business Model Ontology format with the information, documented or tacit knowledge, of the company. Designing and describing the Business Model was done in three workshops, with two being done before the workshops started. These Business Models were filled in by the researcher and facilitator, if due to agenda constraints, the workshop had to fit within 4 hours. In these workshops, the Business Model would be discussed in order to let the facilitator get a better grasp of the Business Model and to get all the participants on the same page. During the Workshop of the Business Model CANVAS, the online application CANVANIZER was used. The use of this tool allowed the facilitator to adapt and change the input directly, and drag and drop the elements from Building Block to another if the fit would be better. After the workshop, the Company would get a link in order to use their own CANVAS Business Model. The STOF-Business Model was created on flip-over paper, and in the second workshop posters were used to create structure during the workshop.



**The second step is the selection of uncertainties for the Business Model Stress Test.** The input, scenarios, uncertainties and trends, were filtered out of the questionnaire the participants had to fill in. The scenarios, uncertainties and trends were shown and discussed in order to add new variables, additionally three were selected to keep the Business Model Stress Test manageable. The scenarios, uncertainties and trends that were selected would get a maximum and minimum variable, in order to confront the Business Model with both extremes. When considering a certain scenario, e.g. The building you are in collapses, the final result could have a large number of endings. The two extremes that can be chosen would be the best scenario, e.g. you will get out of the building without any scratches, and the worst scenario, e.g. the roof comes down, right on top of you, and you die slowly<sup>3</sup>.

**Mapping the selected scenarios, uncertainties and trends to the described Business Model is done during the third step.** The scenarios, uncertainties or trends had an impact on elements of the Business Model, due to the confrontation. What the impact was, would be written down and placed onto the designated cell, in order to make clear what the impact was. The impacts could vary between high impact and no impact, or a positive and negative impact. The level of impact is colour coded in the fourth step. In this step, the different scenarios, uncertainties and trends are related to the Business Model elements to make clear what the whole picture looks like.

**The fourth step was the heat signature,** based on the traffic light colours as discussed in Chapter 2. With post-its and discussion, the different Business Model elements were confronted and coloured pink, yellow, green or left blank if no real effect would be expected. The pink was the new red, the yellow the new orange and the green colour was the only colour that kept its pre-determined colour.

**The fifth step is the analysis of the heat signature that was formed.** After labelling the different confrontations with colours, the extremes per scenario, uncertainty or trend were analysed to see if the results were consistent, i.e. two greens could indicate an excessively positive perspective, and two reds could indicate an inconsistency in the Business Model. The different colours could also indicate that there are possible showstoppers for the company, if they continue with a specific Business Model element, or when a certain scenario occurs. The Business Model Stress Test, does not only give a structure via the confrontation with colours, but also via grounding of the Business itself. Do problems arise due to the chosen Business Model, or certain elements, or is it solely due to the scenarios, uncertainties and trends that these problems arise. The next step: Conclusions, will relate to this perspective.

**The last step, Conclusions,** will discuss the weak elements in the Business Model, and how the desired scenarios could be created. Discussing the weak elements of the Business Model Stress Test will result in a list of action points to improve the robustness of the Business Model. The robustness can be improved by addressing the weak elements or reduce the inconsistencies in the Business Model.

The last phase of the workshop was the evaluation phase, to get direct feedback from the participants. The workshop was discussed in general, and not per segment, in order to determine what the most important aspect of the workshop was from the participants' perspective. Topics that were discussed were, what could be better, what the facilitator could have done better, if

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<sup>3</sup> This could be more dramatic, but the point should be clear.

expectations were met and what they would do with the newly acquired information. After the workshop, a questionnaire was sent that focussed on the experience, the usefulness of the workshop and the different tools that were used. The questionnaires, before and after the workshop, will be discussed in Sub-Chapter 3.3 - Data Collection

During the workshops the observer took notes of everything that might have been relevant, to review and analyse. The detailed workshop overview can be found in Appendix III – Workshop Overview, page 79. All workshops have been recorded, as a backup, as to be able to study the workshops afterwards. The language used during the workshop was dependent on the company present. If the working language is Dutch, the workshop would be held in Dutch. The reason for this, is the fact that people can connect ideas faster and better, if a brain stimulating activity is given in the language they are very familiar with in the created setting (Buijs & Van der Meer, 2013).

Before the workshop commenced, the participants did a pre-test by filling in a questionnaire with different questions related to the workshop and to this research, this is discussed in the next section: Data Collection.

### 3.3 Data Collection

Data is the building block for information to get context and meaning (Doyle, 2014). In order to get the correct information, the data that has been collected must be the building block for getting this information. In the following sections the data collection methods and the reason for using them are described in Data Sources, Questionnaire before, Questionnaire after, Observing data and Data structuring.

#### *Data Sources*

Information is essential and is necessary to enable the researcher to answer the research question. The sources of the collected information are different, with the use of different methods and for different reasons. The different data sources and collection methods are discussed in this section.

The questionnaires created insights in the participants' and the groups' status, concerning the workshop and understanding of the different concepts. The information that has been collected can be used to relate the different companies to each other, or relate the before- and after-questionnaire in order to determine the change, and hence, the effect of the experiment. The information is mainly qualitative in nature, but contains quantitative questions on concepts that allowed it to be quantitatively measured.

Observation was used for collecting the information during the workshop. This method is a qualitative, and mainly subjective procedure, that transforms the information that is observed via the senses of the observer, into written information (Lewis et al., 2007). The transformation process is highly dependent on the judgement of the researcher.

The outcome of the workshop is fixed, but qualitative information is the result of the workshop and will be collected at the end of the workshop. The outcome, which can be valuable to the company, does not imply this is the same for this research.

By interviewing experts, such as the facilitator, new qualitative information could be incorporated to increase the success rate of the workshop. This directly impacts the result of the workshop, and

could benefit the research. Some information is tacit knowledge that is not publicly available or written down, and can only be gathered via an interview. The interview would be a semi-structured interview, in order to get more information from a single question, when compared to a structured interview (Berg & Lune, 2004).

The intake of a company will be in the style of a meeting, such as a conversation via Skype. This intake is meant for the facilitator to collect information in order to prepare the workshop correctly. The facilitator wanted to get a better feeling, or idea, of what the company wanted and needed.

The information sources vary. The method to collect all information is called mixed-method design (Lewis et al., 2007). The data can be analysed with different methods, but the reason for which method to choose will be explained in the next section.

### *Questionnaire before workshop*

The questionnaire focusses on qualitative and quantitative aspects, mainly because the Business Model metrics are not fully developed. The paper of M. Heikkilä et al. (2015, p. 11) describes eight different perspectives on which Business Models can be measured, but as stated “The list of metrics is exemplary and in no way exhaustive”.

The reason for using PDF forms, instead of other questionnaire tools, was the reason of confidentiality and privacy. Participants could be more hesitant to fill in information if this would be in an online environment, due to security, privacy, inappropriate use by third parties, etc. While filling in a PDF questionnaire that was attached to a mail directly from the researcher is more trustworthy, so that the participants are less hesitant to fill in company sensitive information.

The pre-tests, before-questionnaires, were sent one week before the workshop commenced and had to be filled in, and sent back within 6 days, with 1 day left for preparation. The time between the workshop and sending the post-test varied from 1 hour to 1 week. The questionnaire had multiple purposes, initially to collect general information from the participants, to collect information with regard to the personal understanding of certain concepts, to obtain insights in the group dynamics and also to collect input for the workshop.

Collecting general information was necessary to better understand the participants and the company. The understanding of the different concepts, i.e. agility, innovativeness, lean start-up, market position, business models, business model tooling, market dynamics and organizational life cycle, are questioned in the questionnaire. The concepts were translated into questions with the use of the Envision interview protocol, and other questionnaires, made by students that also participated in the Envision project, as examples to build on. The questionnaires were improved, based on the input from professionals, business people and professors after testing and analysing the questionnaire.

The complete Questionnaire can be found in the Appendix, Chapter V – Questionnaires. The short overview of how the concepts are connected to the different questions of the before-questionnaire of the companies is shown in Table 9. The red coloured questions were not included in the questionnaire for the Living Lab, the Zo-Dichtbij foundation. The Project Leader convinced the researcher to not incorporate these questions, due to miss interpretation, and lack of added value for this research.

Table 9 Connecting Concepts to Questions – Pre-test

Subject of Questioning	Questions
General information	1,2, 3, 4, 5, 7
Entrepreneurship	6, 8, 9, 10, 11, 12
Business Models	13, 14, 15, 16, 17, 18, 19
Workshop	20, 21, 22, 26
Scenarios	23
Business Model Stress Testing	24, 25
Industry	27, 28 29, 30
Products	30
Innovativeness	31, 32, 33, 35, 36, 37, 38, 39, 40, 41, 42
Agility	12, 44, 48
Technology Dynamics	34, 43
Market Dynamics	44, 45, 46, 47

### *Questionnaire after workshop*

After the workshop, the post-test, or, after questionnaire, was sent to the participants of the workshop. The focus of the questionnaire was on collecting insights of the experience of the participants during the workshop and what has changed due to the intervention of the Business Model Stress Test.

Related to the questions that focus on changes the participant experienced after the workshop, the process overview has been questioned. The process is a crucial element, the observations during the workshops are insightful, but the experience and opinion of the participants are of greater value. The participants are the target group that could potentially use these tools. Questions related to specific sections of the tools are incorporated, in order to check if these elements need to be updated, or changed completely.

The Innovation Disruption Model, discussed in Chapter 2.6.3 - Market Disruption Model, has been used as input in the Stress Test. The Innovation Disruption Model strategies were stated as scenarios, and had to be confronted with their Business Model, in order to check how participants would respond. This provided insight in how the participant dealt with three different scenarios, based on the three strategies, Low-end Strategy, Sustainability Strategy or New Market Strategy.

All participants answered these questions, and the results could lead to a distinction in the four segments, based in BM familiarity and Organizational Life Cycle. Mature companies could deal with problems differently than start-ups, this is discussed further in Chapter 4– Results.

The complete Questionnaire can be found in the Appendix, Chapter V – Questionnaires. The short overview of how the concepts are connected to the different questions of the after-questionnaire of the companies is shown in Table 10. The post-test, or the after-questionnaire, were identical in respect to the sort of questions, but the word “Organisation” was changed into “Living Lab” for the questionnaire of the Living Lab.

Table 10 Connecting Concept to Questions - Post-test

Subject of Questioning	Questions
General Information	1, 2, 3
Workshop Experience	4, 5, 6, 7, 9, 10
Business Model Design Experience	11, 12, 13
Business Model Stress Test Experience	16, 17, 18, 19, 25, 26, 27, 28, 29, 30
Envision Platform	14, 15, 20, 21
Innovation Disruption Model	22, 23, 24
Organisational Life Cycle	31

### Observing data

Observing the workshop was focused on how the Business Model Tools were used by the participants. Since the result of this research will be a list of recommendations on how SME's should use the Business Model Stress Test in an online environment, the observations are a key element in this research.

Observing the participants was the first step while codifying the observed information was the second step. The different sections, e.g. introduction Business Models or Start Business Model Stress Test, were written down, to add structure to the codification. The results of the Business Models and Stress Test Results would be photographed, or quickly copied, after which the workshop was worked out. In order to distinguish different observations, three categories were used to make clear what kind of added value the information had. The three categories are, "Problems/sub-optimal tool performance", "Process" or "Specific" for this workshop. The observation could be related to the "process", which needs attention of the researcher. Either to be looked at for a smoother workshop, or because the process is good, and there is a specific reason, which needs to be added to the list of recommendations. During the workshop, problems, or inflexibility, with regard to the tools, arose, at which the facilitator needed a lot of explanation or clarification in order to let the workshop continue. The case specific category is there to make sure little details, which are an interesting observation during the workshop, were not left out and forgotten in the course of this research.

The complete observations of the workshops can be found in the Appendix, Chapter VI – Workshop Observations. All the observations were categorised and combined in a category specific table, which can be found in the Appendix, Chapter VII – Workshop Observations Overview.

### Data Structuring

The data of the collected information has been structured in order to create a better overview of the results. The focus in this section is on the data structures of the participants, thus, the Business Model Designs, the Questionnaires and the Observations.

The online application CANVANIZER was used during the different workshops. In order to create structure, due to the many customer segments and key partners, the different elements that were related, would get the same colour, as will be discussed in Sub-chapter - 4.5. This is how the overview was created for the companies, and how the Business Model was structured.

The data structure of the questionnaire database was simultaneously developed with both questionnaires. In order to structure the data correctly, the overview, as shown in Table 11, has been used. The answers of the participants were placed in rows, in order to have all the answers of one question per column.

Table 11 Questionnaire data structure

	Question 1	Question 2	Question 3
Participant 1	Yes	15%	I think that....
Participant 2	No	19%	In my opinion.....
Participant 3	Yes	21%	.....
Participant 4	No	.....	.....

The questions that have answers based on scales, i.e. 5-point, 7-point or 10-point scale, would get colour coding in order to make it easier to see a patterns. This extra dimension, relating numbers to colours, will relate the colour on the scale of that question. As shown in Table 12, the colours display how certain topics are perceived, with a single glance on the data.

Table 12 Questionnaire colour overview

	Participant 1	Participant 2
Question 1	4	5
Question 2	5	3
Question 3	4	4
Question 4	1	1
Question .....		

For the observation of the workshops the format will follow the outline of the workshop, which will include the introduction, explanations and starting of discussions or brainstorming sections. Observations that are interesting will be written down, such as unusual questions and interesting interactions between participants. These observations are categorized in three categories, 1. *Problems/sub-optimal tool performance*, 2. *Process* or 3. *Specific for this workshop*. *Specific for this workshop* could indicate that this observation is not interesting enough to take into account for this research, but it is observed. The *process* observation is important, since the process of the workshop is now guided by the facilitator, who can steer the group, but for the online environment, there is no facilitator to steer the process of the group. This observation, if also seen in the other workshops, should be dealt with in the recommendations. The last category, *problems/sub-optimal tool performance*, should be dealt with in the list of recommendations, because the researcher observed problems during the workshop. In the workshop these were solved by the facilitator, and need to be taken into account for the online tool.

During the workshop, different ideas popped up on how to solve certain problems, or how to optimize the process of the workshop, which led to a fourth category, *Ideas*. This is a section which could deal with previous stated problem observations, or sub-optimal process occurrences.

Structuring the data creates a general overview of the available information and could lead to new insights on certain topics. Next to the new insights, structured data makes it easier to use this data as input for analyses. The next section, 3.4 Data Analysis, will discuss how the data will be analysed and how this could lead to the conclusion.

### 3.4 Data Analysis

Analysis of the collected data is an essential step in order to create order out of chaos. The data is a mixture of quantitative and qualitative information that has been analysed with the use of different methods. The two main methods will be discussed in this sub-chapter. Triangulation is discussed first, and Coding is discussed thereafter. These methods are used in the Fifth Chapter – Analysis.

#### *Triangulation*

Filtering information out of a single data source is less reliable than filtering information out of multiple data sources, with both qualitative and quantitative information (Jick, 1979). With the use of multiple reference points in navigation and military strategy, a certain object can be exactly located with the use of triangulation. In research, this method is defined by Denzin (1978, p. 291) as “the combination of methodologies in the study of the same phenomenon.” In this research the phenomenon is the effect of Business Model Stress Test on the participants in the workshops.

The data will be analysed with the triangulation method (Lewis et al., 2007). The reason for this method is that there are a lot of different information sources that influence the outcome. By comparing all different elements, the data can be very meaningful, which supports the goal of the research: to draw conclusions and create a list of recommendations and requirements for the Envision project.

Input for the triangulation method are, the questionnaires, the observation during the workshop, the results of the workshops and the literature review. The questionnaires are both qualitative and quantitative in nature, since this is based on facts, opinions and estimations. Observing the workshop is qualitative in nature, since this is based on the opinion of the observer. The literature study is quantitative in nature, due to the fact based approach.

#### *Coding*

The questionnaire data contains a lot of information that is qualitative in nature, and can be interpreted by a human being, but not by a normal computer. In order to use the potential of computers to detect patterns that are not visible for human beings, this information has to be codified.

Codification, as stated by Miles et al. (2013), uses several steps to translate the qualitative information into quantitative information. In this research, both questionnaires were codified in two rounds. The first round codified the sentences into words that captured the essence of that sentence. Words could be given a + or a – to better distinguish the essence of a certain word, in order to better fit the word into a category in the second coding round. In a single response, multiple ideas or answers could be given, and multiple words were used to cover all the areas. The second round listed all the answers of a certain question, and made 5 categories that covered all the answers. This was the last step of coding, before the real analysis could start.

#### *Conclusion*

This chapter described the methods and different approaches that are used in the research. The different steps described in this chapter serve as guidelines for the coming two chapters, Results and Analysis. When the steps in this chapter are followed, the results will follow automatically, which is discussed in the next Chapter - Results.

## 4 Results

*This is the Fourth Chapter: Results. The obtained results are a logic consequence of carrying out the different steps that were defined in the Third Chapter, Methodology. In the Fifth Chapter - Analysis, the results are the input variables for the analyses that has been carried out during this research. The results are also input for the Sixth Chapter - Discussion, Conclusion and Recommendations. This chapter will discuss different sub-chapters, which are, the Companies that participated, Group Dynamics, Facilitation and Workshop Overview, Business Model results, Business Model Process, the Business Model Stress Test Results, Business Model Stress Testing process. To conclude this chapter, a short overview is presented.*

### 4.1 Companies

Three Companies and one Living Lab participated in the workshops in order to collect information for this research. The different companies are separately introduced, and general results are discussed after this.

#### *Stichting Zo-Dichtbij*

The Living Lab Stichting Zo-Dichtbij, aims to build a matchmaking platform to support civilians in order to live independently for as long as possible. The focus is to match volunteers and care-takers with elderly people that need support. The platform allows access to different companies, e.g. healthcare providers and health insurances, to improve compatibility with different partners and improve the level of support for the civilian.

#### *4LittleBirds*

This Start-up is a product development and design company. Their products intend to deliver a smile on the faces of people that use, or see the product. Their main product is the Tropical Hangout that they want to lease to companies, festivals or other events. The Tropical Hangout is made out of 3 big Bamboo poles, steel cables and a special construction to mount 3 hammocks that people can lay in.

#### *Holland Container Innovations(HCI)*

Holland Container Innovations is situated in Delft from which they successfully market their idea of a foldable 40ft container. They license a container builder to manufacture the number of containers the shipping company needs. The manufacturer gets paid by the shipping company, while the manufacturer pays HCI. The product is a container which can be used as any other 40ft container, but can additionally be folded. The container, when folded, is  $\frac{1}{4}$  of the original container size, which decreases the transport load on many levels, i.e. space, transportation costs, handling costs, etc.

#### *FairShare*

Charities can start a lottery with the service of FairShare. With this solution, charities, from the local football- or bingo-club, to Warchild, are able to earn extra revenues. Charities will get 50% of the price of a lottery ticket, the other 50% is for running the business, i.e. overhead, prizes, marketing, etc. For now, the lottery industry is controlled, or even locked, by the government and incumbent lottery companies, but this could change in the coming years.

Shown in Table 13, the four quadrants are based on Business Model familiarity and Organisational Life Cycle. The total number of participants in this research is 22, with an average age between 36 and 45. Four age categories, 21 – 30(2), 31-40(3), 41-50(4) and 51-60(5) are covered in this research.



The 5 experiments, or workshops, were executed between the 13<sup>th</sup> of August and the 1<sup>st</sup> of October, with four workshops in Delft, from which three were in the Boardroom of TPM and one in the Fishbowl(B1.300). The last workshop took place in Amsterdam at the office of FairShare, due to agenda constraints.

In the questionnaire, some results showed commonalities and differences. Commonalities in Company Culture and Innovativeness, and differences in product complexity. All four companies have an entrepreneurial company culture, the living lab states that they also have a learning culture, while HCI state that they have a strong innovative culture, as their company name insinuates. HCI rates their own company an 8 out of 10 on innovativeness, while 4LittleBirds rated themselves an 8.6. Stichting Zo-Dichtbij is approximated at an 8, which is the same as HCI and FairShare rated themselves a 7 out of 10, which is the lowest in this category. FairShare also scored themselves the lowest on product complexity with a 2.8(range 1 – 5), while the ICT platform of Zo-Dichtbij has a 3.8. The tropical hangout of 4LittleBirds is rated at a 3.1, while the highest rated complexity level is the foldable container of Holland Container Innovations, with a 4.1.

Participating companies are not sustainable, cash flow is not high enough to sustain their own business. FairShare and Stichting Zo-Dichtbij recently started their projects. The large upfront investments and long development time, as both are big ICT platforms, are the reason for the long start-up period, and the zero revenue. The company 4LittleBirds are just hanging on, and the co-founders work mostly in-kind, and by bootstrapping, they are able to pull through. The most earned revenue comes from Holland Container Innovations, yet HCI is not sustainable, due to the continuous development of the product, large upfront costs for IP, and market pressure from the current container industry.

Table 13 Combined company results

Company	Stichting Zo-Dichtbij	4LittleBirds	Holland Container Innovations(HCI)	FairShare
Organisational Life Cycle stage	Start-up	Start-up	Mature	Mature
BM Familiarity	Familiar	Not familiar	Not Familiar	Familiar
Participants	10	3	5	4
Average age(category)	40 – 48(4)	21 – 30(2)	29 – 38(3)	46 – 55(5)
Date of Workshop	13-08-2015 03-09-2015	20-08-2015	25-08-2015	01-10-2015
Duration Workshop	2 x 8 hrs	8 hrs	4 hrs	4 hrs
Location Workshop	Boardroom, TPM Fishbowl, TPM	Boardroom, TPM	Boardroom, TPM	FairShare Office, Amsterdam
Company Culture	Entrepreneurial and Learning	Entrepreneurial	Innovative, Entrepreneurial	Entrepreneurial
Innovativeness	±8/10 <sup>4</sup>	8.6/10	8/10	7/10
Product Complexity <sup>5</sup>	3.8/5	3.1/5	4.1/5	2.8/5
Product	ICT Platform	Tropical Hangout	Foldable Container	Charity Lottery Platform
Sustainable	No	No	No	No

<sup>4</sup> Approximated on previous results

<sup>5</sup> Average of Questions 34a – Technology Level, 34c – Number of steps during manufacturing and 34e – Complexity of Solution

The company overview is presented in this sub-chapter to create an understanding of the participating companies. How the different companies participated in the workshop, is discussed in the next section, Group Dynamics.

## 4.2 Group Dynamics

Group compositions changed every workshop, which resulted in different group dynamics during the different workshops. The five workshops are shortly discussed, by stating the most important observations concerning the dynamics of the group, and how the group “behaved”. In Table 13, the overview of the number of participants per company are stated, Zo-Dichtbij had two workshops with 4 and 6 participants respectively. As shown, the number of participants per workshop varies between three and six people.

### *Workshop 1 – Living Lab Zo-Dichtbij*

The first workshop had experienced and pro-active participants, which led to a smooth overall workshop. They were not all familiar with each other, so they had to familiarize with each other first. The project leader was the clear leader within this group, since she is the so called “spider in the web”. Even though the project leader was a driving force, the discussions took a long time. The difficulty was determining the correct scope and vision for the Business Model and Business Model Stress Test. The different steps during the workshop led to some discussion and would be solved by the facilitator, or by agreeing upon a common, or shared, vision.

### *Workshop 2 – 4LittleBirds*

This group was younger, but were familiar with each other due to their long lasting friendship. The focus of the participants was not completely clear, due to the question of “What are we doing, and where should we be heading?” that continuously arose throughout the whole workshop. During these discussions, the opinions were backed up by clear reasoning and were accepted by the complete group, trust and acceptance were clearly visible. However, the lacking experience in abstract level business thinking, forced the facilitator to make every step very explicit and clear. The last important observation during this workshop was stated during the evaluation, one of the participants expected someone telling them what to do, now and in the future, where they should be headed and what their roadmap should look like.

### *Workshop 3 – Holland Container Innovations*

In the beginning of the workshop the participants had a “wait-and-see” attitude, while more towards the end of the workshop the group became very pro-active, serious, sharp and honest which in the end resulted in a fast paced process. The workshop was shortened, due to time-constraints, but the end-result was of high-quality and well (stress) tested Business Model.

### *Workshop 4 – Living Lab Zo-Dichtbij*

During the fourth workshop, some people were delayed due to various reasons. When they joined the workshop they would, unintentionally, disturb the group process, and throw the process a couple of steps back. Next to delayed people, there was a single, extremely dominant participant, which would continuously disturb the process, as some would say “Hi-Jack the workshop”. Next to these uncalculated disturbing factors, splitting up the group, to work on Technology and Organisation at the same time, was also blocking the process flow. All these elements combined resulted in very long discussions on general, as well as very specific topics.

## Workshop 5 – FairShare

The last workshop was in Amsterdam, at the headquarters of FairShare. The room was a bit small, which resulted in a cramped atmosphere, while this changed when we moved to a more spacious office with a clear view on the Amsterdam city centre. This stimulated the participants to get more ideas and also better understand each other. This workshop also lasted 4 hours, just like Holland Container Innovations, and also was very quick paced. The quick pace was due to the pro-active attitude, but also due to the experience the participants had. During discussions, the participants were honest and fair to one another, which resulted in short and clear discussions with a high information density.

In general, the group dynamic changed every workshop, due to different compositions but also during the workshops, the dynamics of the group changed. The energy- and pro-activity level of the participants decreased during the workshop due to the intense character of the workshop. The workshop was mainly structured via the Business Model Ontology which gave the participants the guidance and support they needed during the workshop. Another important aspect for the structure of the workshop is the facilitator and the workshop approach, discussed in the next section.

### 4.3 Facilitation and Workshop Overview

In this section the workshop overview and the role of the facilitator during the workshop, was discussed. Some workshops had altered designs, due to constraints, which resulted in a change of the workshop approach, which will be discussed later. Next to the workshop structure, the facilitation style also changed every workshop, due to the different group compositions, and will be discussed in this section.

Table 14 Workshop overview and Facilitation style

Workshop	1	2	3	4	5
Company	Zo-Dichtbij 1	4LittleBirds	HCI	Zo-Dichtbij 2	FairShare
Participants	4	3	5	6	4
BM Ontology	STOF	CANVAS	CANVAS	STOF	CANVAS
Duration in hours	8	8	4	8	4
BM prepared	No	No	Yes	No	Yes
Average Age	40 - 48	21 - 30	29 -38	40 - 48	46 - 55
Facilitation style	Analyst, Advise, Support	Stimulant, helping hand	Guiding, Process Optimizer, Feedback	Analyst, Controller	Oil of a good running machine
Workshop Overview	1. Filling in BM domains 2. Stress Test BM 3. Evaluation	1. Filling in BM Building Blocks 2. Stress Test BM 3. Evaluation	1. Review BM 2. Stress Test BM 3. Evaluation	1. Filling in BM domains 2. Stress Test BM 3. Evaluation	1. Review BM 2. Stress Test BM 3. Evaluation

The workshops of Holland Container Innovations(HCI) and FairShare had a length of 4 hours, in which the focus was the Business Model Stress Test. As stated in Table 14, the Business Model was reviewed during the workshop, in order to get everyone on the same page. The Business Model was filled in before the workshop commenced, and would be verified during the workshop in order to use this Business Model for the Stress Test. The intensity level was higher, due to the pressure of time, energy and focus of the participants. In contrast with 4LittleBirds and the two workshops of Zo-Dichtbij, the length of the workshop was 8 hours, in which the Business Model would be designed from nothing and later used for the Stress Test.

Business Model Stress Testing was the second step in the workshop. The Business Model Stress Tests started with compiling a list of scenarios, trends and uncertainties that are interesting for the organisation to test their Business Model with. After the setup of the matrix, with the Business Model Blocks or Domains vertically, and the scenario's, trends and uncertainties on the horizontal axis, the coloured post-it's soon covered the whole matrix. The process of the different Business Model Stress Tests can be found in Chapter 4.6.

Evaluating the workshop, the result and the whole experience was the last step before the workshop would be complete. The overall response was very positive, in the sense that they valued their time in the workshop more than spending the same time on their regular tasks. There were some tips for the facilitator on how to improve, and some misalignments, with expectations of the participants were straightened out. The evaluation was mainly added value for the facilitator and the observer, by getting feedback on facilitation and use of the tool, and less for the participants.

During the different workshops, the facilitator adopted certain facilitation styles that would fit the group best, in order to achieve the best end-results. In Table 14 the different facilitation styles, which were used during the workshops, are shown. In the Zo-Dichtbij workshops, the facilitator had an analyst type of facilitation style, due to the fact that he wrote down the essential elements from discussions that were useful, for the Business Model and for the Business Model Stress Test. During the first Zo-Dichtbij workshop the facilitator supported the process mainly by asking sharp questions and giving examples. He also advised the participants on how to deal with issues in the future, since he was familiar with similar types of platforms that did not make it, due to these issues. In the second workshop of the Zo-Dichtbij foundation, the facilitator had to take on a control, or protect style of facilitation, as can be read in the previous section, in order to manage the whole group.

The second workshop with 4LittleBirds had a different approach, due to the different Business Model Ontology, the type of product and the average age of the participants. This company needed a facilitator that would stimulate them to get ideas and help them with filling out the Business Model every step of the way. As they stated during the evaluation step of the workshop, *"We would have liked, and also expected, to get an analysis of our company, and get feedback on where to focus on in the near future"*. Holland Container Innovations needed a more guiding facilitator, which would guide the process, in order for them to fully focus on building and stress testing the Business model. During the different discussions, they asked for feedback from the facilitator, which they did, and sometimes did not, incorporate in their Business Model or Business Model Stress Test.

FairShare had a well thought-out Business Model that became clear during the review of the Business Model. During the first step of the workshop, the signs of a group that worked well together, became clear. During this workshop, the facilitation style can best be described by *"Oil of a good running machine"*. The facilitator made sure the machine kept on going, and even sped up the process if possible. As the participants stated in the evaluation step, the benefit of an external expert on this topic, with a new and different perspective on things, could have improved the workshop tremendously.

In this section the overview of the workshop has been created, and what the different facilitation styles were during the workshops, in order to get the best possible workshop results. The next section will discuss the Business Model results created during the workshops in order to use them as input for the Business Model Stress Test.

## 4.4 Business Model Results

The results of the Business Models are discussed in this chapter in order to understand what the input for the Business Model Stress Test was. The process of the Business Model Designing phase is discussed after this sub-chapter. Not every detail of the Business Model is explained, but the core elements of the Business Model are discussed. The results are discussed irrespective of the Business Model Ontology used during the workshop. The four complete Business Models, designed in five workshops can be found in the Appendix - VIII – Business Model Results.

### *Stichting Zo-Dichtbij*

During the workshops of Zo-Dichtbij, the STOF Business Model is used, which focusses on four domains, namely Service, Technology, Organisation and Finance. With an initial focus on the value network, and the value proposition, the different customer groups were identified, Elderly people, Voluntary Caretakers, Service Providers and Municipalities. With the Service Providers, e.g. health insurance companies as users of the platform, to promote their services and get access to customers. The next step resulted in a diagram in which the different value, information and process flows were identified. The identification of the whole eco-system and the different dependencies resulted in a clear overview on which to build the Technology Domain.

After the identified Service and Organisation domain, the Technology and Finance domain were discussed. The result of the Technology Domain was an initial identification of the needs for the Technology platform, due to the complexity and the dependencies, much has to be done in order to build the platform. The Financial Domain focused on the Revenue Model during the workshops, and the result is a licence fee for the Municipality, an advertisement fee for the Service Providers and a Monthly Fee for the Voluntary Caretakers, in order to pay the ICT Firms and free use for Elderly People.

The Business Model was designed with a focus on improving the current diffuse and expensive market for elderly people. The goal is to create an understandable market, which provides all correct information in one place, in order to reduce costs and let elderly people live longer in their own homes. This could be distinguished as a low-end disruption, by the Innovation Disruption Model, due to the shift of a dispersed market with expensive channels, to a single and cheap channel with a clear market. With an overserved customer market of elderly people, the Business Model of Zo-Dichtbij has a lower cost focus, which fits the low-end disruption.

### *4LittleBirds*

In the workshop of 4LittleBirds, the CANVAS Business Model was used to create an abstract overview of their business. The focus of the workshop was on the Tropical Hangout, a product that supports three hammocks by Bamboo Poles and Steel Cables. Their goal with this product is to create an experience for users that can be classified as relaxed, tropical, and stimulates creativity, but serves as an eye-catcher for Festivals and Companies. The eco-system of 4LittleBirds includes Event Organisations, Rental Companies, Event Planners and Marketing Agencies.

By distributing the Tropical Hangout themselves, 4LittleBirds keep their products in personal care and controls the complete chain of customer interaction. Via direct contact with customers, they expand their network to enter new festivals and access new markets. With access to a complete array of tools, they develop and improve their current product. The Tropical Hangout is a product to

either, lie in a hammock or sit on a bamboo pole, in order to relax and enjoy life. These features are offered by other products, in a variety of markets, which results in a Sustainable Disruption. The product offers different new elements, compared to existing products, which is an essential element for the Sustaining Disruption.

### *Holland Container Innovations*

Holland Container Innovations used the CANVAS Business Model, and described these nine elements with multiple colours to better understand the dependencies within the Business Model. The Value Proposition of the company is, certified, fast, safe and strong Foldable Containers. In order to realise these values, HCI licenses their IP, Design and Trademark of 4Fold to manufacturers in order to earn revenues. HCI does not produce the 4Fold Containers, which lowers the costs considerably, and this allows HCI to focus on their key activities like Product Development, quality checks and Marketing & Sales.

In the ecosystem of HCI, the containers are built on demand for Shipping and Lease Companies, by Manufacturers, after the Sales Agent, or Sales department, has sold the containers. The product of HCI is a new product, in an existing market, which can be defined as a Sustaining Innovation Disruption. The container is identical to current solutions, but can be folded, when empty, into a quarter of its original size, this results in lower costs and has a more ecological friendly solution compared to current products. This does cancel out the possibility of a Low-End Disruption.

### *FairShare*

The Business Model CANVAS of FairShare also used different colours to make the different dependencies between the nine Building Blocks clear, which is discussed in the next sub-Chapter. FairShare offers “Lottery as a Service” for charities to earn extra revenues. FairShares’ goal is to make a platform in which users (charities) can create their own lottery with a few clicks of the mouse, thus providing self-service. The essential parties involved with FairShare are, Charities, Government, Media Partners and Notary organisations.

Key Resources of FairShare are the Lottery System, Knowledge & Know-How, FairShare Brand and Concept, and lastly, the team and their network. The platform which supports the Lottery System, are the biggest upfront costs. Costs when the Business is running is mainly the 50% of the price of a lottery ticket going to charity. Revenues can be accounted to the other 50% of the lottery ticket, advertisement and marketing campaigns and licenses for using the Lottery System. Due to the complete new concept of FairShare, there is no competition, but also no consumption. Which can be categorized by the New Market Disruption, which clearly states that the biggest competitor for a new concept in a new market, is non-consumption.

In this section the results of the workshop were discussed in order to understand what the input for the Business Model Stress Test is. In the next section the processes of the workshops are discussed in order to understand how the companies used the different Business Model Tools. The Business Model STOF, and the Business Model CANVAS are discussed separately in order to understand the small differences.



## 4.5 Business Model Workshop Process

In this research, the STOF, or CANVAS, Business Model has been used during the workshops. The STOF Business Model is used during the Stichting Zo-Dichtbij workshops, and the CANVAS business Model is used during the other workshops, 4LittleBirds, HCI and FairShare. This section will discuss the results of the process of the STOF and the CANVAS Business Model.

### STOF

Service, Technology, Organisation and Finance are the four domains that form the foundation of the STOF Business Model. The workshop focused on three or four domains and therefore the Business Model Designing was divided in three or four segments. The Technology domain was dependent on the participating Technology Experts in the workshop. Due to splitting up the group, the Technology domain is not discussed.

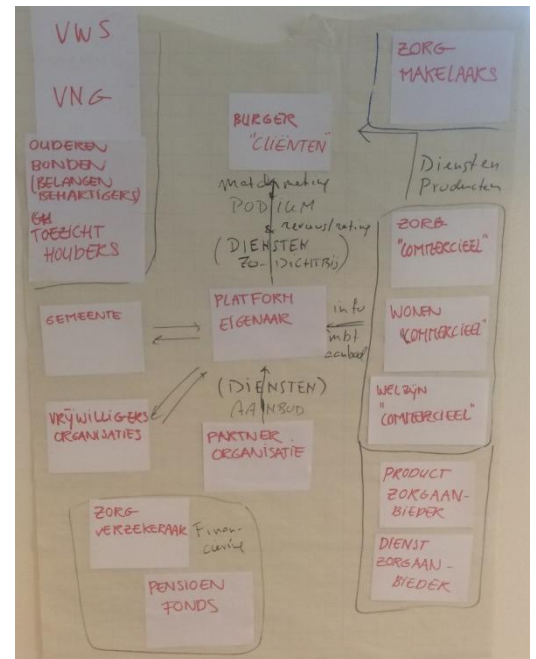


Figure 9 Value Network Zo-Dichtbij 1st workshop

Both workshops started with the Service Domain in order to determine the value proposition for this service and Living Lab. Due to previous research of the project leader, personas were developed before the first workshop commenced. These personas triggered the different value propositions for the involved actors within the network. The result is a value network, as shown in Figure 9. The second workshop started with a predefined structure, due to the lack of structure in the first workshop. The structured approach as shown in Figure 11-2 was a new tool to organise the workshop. The result of the Service Domain, after both workshops, is shown in Figure 11-1. The complete STOF Business Model can be found in the Appendix - Chapter VIII.

During the Organisation domain part, the participants stated *“It is better to list the different stakeholders first, and map them afterwards. Else you will lose track and might miss some stakeholders”*. The process of this domain went smooth, due to the list of persona’s and previous research by the project leader. The interaction between the Service and Organisation Domain was clearly visible, since stakeholders are key in both domains.

Service Domain	
Target Group	Compelling Value Proposition
Elderly Person	Living as long as possible with support at low cost
Voluntary Caretaker	Support and guidance to unburdening the healthcare load.
Provider	Access to customers, and promotion of the services in the marketplace.
Municipality	Support and secure instrument with high quality, reliability and comfort to guide, and communicate effectively with citizens at low cost.

Figure 11-1 Result Service Domain – 2<sup>nd</sup> Workshop Zo-Dichtbij

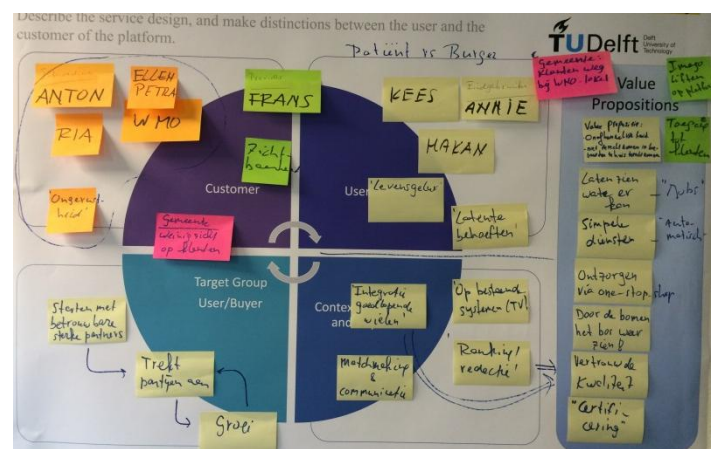


Figure 11-2 Service Domain - STOF - Workshop Zo-Dichtbij 2

In the second workshop the Technology domain was discussed, but due to a lack of technology experts during the first workshop, this domain was not discussed. If the Business Model has a large Technology Component, Technology experts need to be present in the workshop in order to cover this aspect correctly. All participants must be aware of the impact of this element, due to the possible constraints this could pose on the Business Model. The Technology domain was extensively discussed in the second workshop, but in English, which was necessary due to the unfamiliarity of the Dutch Language by the facilitator. This led to some communication issues, since not all participants were native English speakers, and this made input, on how to build the platform, more difficult.

The Financial Domain was mainly focused on the Revenue Model, and not on the cost side of the business. The Revenue Model had a high impact on the complete Business Model in both workshops. During the workshop, the decision on which Revenue Model, or multiple Revenue Models, to take was difficult, due to all the dependencies and consequences.

### CANVAS

The Business Model CANVAS uses nine building blocks to get an abstract overview of the business. During the workshops all nine building blocks were filled in, in order to generate an overview that could be used for the Business Model Stress Test. Due to the interrelatedness of the blocks, combinations of the building blocks were simultaneously discussed and filled in.

With the workshop of 4LittleBirds, the whole Business Model had to be designed from the beginning, while the Business Model of HCI and FairShare were developed before the workshop started. 4LittleBirds had a lot of discussion during the session to get clear what their vision was, since they did not put a lot of thought into this before the workshop. The other two workshops used a Business Model that was developed by the facilitator or researcher, before the workshop commenced, based on available information, i.e. PowerPoint Presentations, Business Plans, Business descriptions, etc. The developed Business Model was discussed in order to get everyone on the same page, and inconsistencies or deviations from their vision, would be adjusted in the CANVAS.

The Business Model from Holland Container Innovations, and especially the Business Model of FairShare had extra layers that clarified the relations and linkages between elements. By giving different colours to different actors in their Business Model, as shown in Figure 13, the linkages between building blocks create a structured overview. In Figure 12, the overview of a single coloured Business Model Building Block is shown, which, when the complete Business Model is reviewed, offers less understanding, if explanation is not given.

During the CANVAS Workshops, the starting blocks would be the Value Proposition and the Customer Segments. These Building Blocks are easier for the participants to come up with ideas, in order to start-up the process. Dependent on the level of importance, the Key Partners, or the

#### Customer Segments



Figure 12 Single colour BM CANVAS - 4LittleBirds

#### Customer Segments

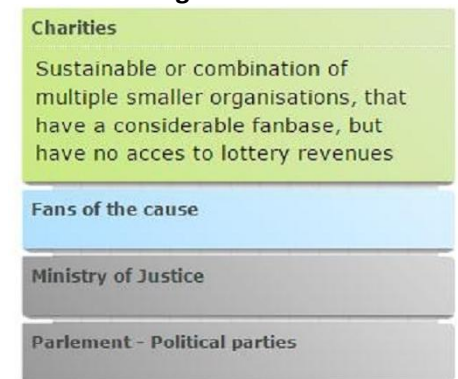


Figure 13 Multi colour BM CANVAS - FairShare



Customer Relationship and Channels were discussed. The Key Partners, Key Activities and Key Resources were discussed in the third phase of the workshop. The last phase normally discussed the Cost Structure and the Revenue Streams of the organisation.

The filled in Business Models are the first half of the Business Model Stress Test requirements. The second half is a list of scenarios, trends and uncertainties that will be confronted with the filled in Business Model. The Results of the Business Model Stress Test are discussed in the next sub-chapter.

## 4.6 Results Business Model Stress Testing

The results of the Business Model Stress Tests are discussed in this sub-chapter in order to understand what the input variables were and what the heat signature indicates. The process of the Business Model Stress Test is discussed after this sub-chapter. The results are generally discussed, which entails that not every item is covered in depth. The five Business Model Stress Tests are discussed in four sections, outlined per company. The five complete Business Model Stress Tests are enclosed in the Appendix - IX – Business Model Stress Test Results.

### *Stichting Zo-Dichtbij*

During the Stress Test of both Workshops, the focus of the scenarios was long term, with elements of strategic feasibility. The discussed scenarios were Competition, Power of Healthcare Insurances, Privacy, Digital Skills, Competition, WMO-Regulation changes and Aging Population. The scenarios had two extremes that were confronted, but the trend Aging Population and uncertainty WMO-Regulation changes, had a single confrontation. The focus during the Stress Test, in both sessions, was the feasibility of the platform, and what the best possible Business Model would be in order to have the highest chance of success.

When the scenarios, trends and uncertainties were discussed, the biggest problems, which the participants could foresee was, when competition follows fast, that Digital Skills are either good or bad, Privacy settings were closed off, or when WMO Regulation changes. The main Business Model element that poses showstoppers are the actors and their position in the value network. The Business Model elements, Proposition and Technology are not considerably affected by the confronted scenarios.

In the evaluation of the workshop, the participants stated that the Business Model Stress Test was clear, very useful and provided new insights on which can be built upon. In the post-questionnaire, the participants stated that the Low-End Strategy is viable, but some adaptations have to be made in order to improve the chances of the current Business Model working. As stated by the participants; *“The Business Models needs to be more focused”, “Business Model could work with this strategy after some adaptations”* and *“Since we clearly chose for medical related issues, like the plan for caretakers, our platform has a head start on possible competition. There are almost no parties that can deliver a similar platform.”*

### *4LittleBirds*

The scenarios of the 4LittleBirds workshop were focused on feasibility in the current and existing market, thus short term focused. The scenarios that were discussed during the workshop, are, Capital, Festival Market and Human Resources. Capital and Festival Market both had two extreme variables to confront the Business Model with. The scenario Human Resources has three variables, which contains a favourable, unfavourable and unchanging focus. The focus of the Stress Test was

on the foundation of the company, discussing the three essential elements for a sustainable business, which are Money, Demand and People.

Problems that were identified during the confrontation were linked to Lack of Capital and a Lack in Human Resources, with a specific focus on the absence of Sales and Marketing experience. The elements of the Business Model that were identified as problematic were, Key Activities and Key Resources. The elements Value Proposition, Customer Relationship, and Channels were not affected by the confronted scenarios, but the Customer Segments, Revenue Streams, Key Partners and Cost Structure were slightly affected by certain scenarios.

The founders of 4LittleBirds, the participants of the workshop, stated that the workshop was interesting and, as one participant stated, "A good structured approach to familiarize oneself with a model, I was unfamiliar with beforehand." The Sustainable Strategy is a viable option, but 4LittleBirds should change their Business Model drastically. Statements by the participants, suggest that improving the current business is crucial for the existence of 4LittleBirds. As the participants state, "*For now we have a head-start on competitors, but the current Business Model is not Sustainable if competitors enter the market with a better version*", or "*The step for competitors to enter this market is small, we have to excel in our business and scale up quickly.*"

### *Holland Container Innovations(HCI)*

In the workshop of HCI, the scenarios contained a strong Technology Development aspect, with a Short and Long term focus. The discussed scenarios were; Quality Production, Adoption Speed, Transport Costs and Manufacturing Speed. All Scenarios had two extremes, the scenario could go down, e.g. lower quality of production, or go up, e.g. higher quality of production. The focus during the Stress Test was two-fold, the first element was on the technological side of the product, current quality and cost, and the second element was the long term feasibility of the product, in a possibly changing market environment.

During the discussions, with regard to the scenarios, the major problems that HCI could identify were that, Quality of production lowers dramatically, Adoption of the Product stagnates, and if Transportation Costs go down problems with revenue will arise. The Business Model Elements that pose the biggest problems, in the current Business Model, are the Customer Segments, Revenue Streams, Key Partners, and their Value Proposition. The unaffected Business Model Elements are Costs Structure, Key Resources, Key Activities, Channels and Customer Relationships.

Holland Container Innovations felt that the Business Model Stress Test was useful, interesting, and even led to new insights. The Sustainable Strategy is a viable option for HCI, as one of the more strategy focused participants stated in the post-questionnaire, "*Completely fine*". One of the participants stated that he would welcome a competitor with a Low-End Strategy "*When competition has a low quality product, we could also lower the quality, and increase sales by lowering the prices.*"

### *FairShare*

FairShare focussed during the workshop on Long Term scenarios, with the core on New Market feasibility. The discussed scenarios were, availability of Regulation and Licences, Profit Remittance and the Incumbent Competitor. The scenarios had two extremes, either a positive or negative outcome for FairShare. The focus of the Stress Test was an initial identification of the biggest hurdles to overcome, in order to determine if this business had any potential.

When the Business Model was confronted with the scenarios, two major concerns were identified. The first concern was the decline of licenses, due to unfavourable regulation towards FairShare. The second concern is the immediate and intense response of the incumbent: the competition. The Business Model elements that need attention after the confrontation were Cost Structure, Key Partners, Key Resources and Customer Segments. The Business Model elements that are affected negatively are mainly affected due to the monopoly created by the government. The other elements are less affected or not at all, such as with Customer Relationships.

Stress Testing was useful, and also led to new insights, with regard to their own Business Model. The structured approach helped to get all the participants on the same page, in order to move to the next step in the market introduction process. The New Market Strategy is a viable option for FairShare, but changes to the current Business Model have to be undertaken, now and in the future. As the participants state, *“Our Business Model needs to be reshaped in order to fit the market, not only now, but every year”* and *“Our Business Model can be used in this format, but we have to develop a new and better version of this product, before introducing it in the market”*.

### Company Results Overview

This Sub-Chapter discussed the different results that came out of the Business Model Stress Test workshops. In Table 15, the different companies and the scenarios that were used during the workshops are stated vertically and horizontally respectively. The scenarios can have two or three variables, as stated before. For example, Stichting Zo-Dichtbij 1, the first Scenario is Competition, which can be fast or slow. This entails that the Scenario “Competition” is confronted with the Business Model two times, the first time when competition follows fast, and the second time when competition is slow in following Stichting Zo-Dichtbij. The trends that were used during the workshops have a single outcome, discussed in the Third Chapter, like “Aging Population”(Stichting Zo-Dichtbij 2: Scenario 4).

Table 15 Combined overview of Companies and Scenarios

Company	Scenario dimension 1		Scenario dimension 2		Scenario dimension 3			Scenario dimension 4	
Stichting Zo-Dichtbij 1	Competition		Healthcare insurances		Privacy				
	Fast	Slow	Enemy	Friend	Closed	Open			
Stichting Zo-Dichtbij 2	Digital Skills		Competition		WMO-Regulation changes			Aging population	
	Bad	Good	Slow	Quick					
4LittleBirds	Capital		Festival market		Human Resources				
	External	None	Crashes	Growth & Luxurious	Stable	Variable Less	Variable More		
Holland Container Innovations	Quality production		Adoption speed		Transport costs			Manufacturing speed	
	Go down	Go up	Go down	Go up	Go down	Go up		Go down	Go up
FairShare	Profit remittance		Regulation and licenses		Response Incumbent Competitor				
	Low	High	Unavailable	Available	High	Low			

The created overview, of all the scenarios used during the workshops, is used in the Fifth Chapter – Analysis, to check if the focus of the scenarios, can be related to the discussed concepts, e.g. Innovation Disruption Strategy. These results can be used to determine the effect of the Business Model Stress Test, but how the Business Model Stress Test is used by different companies, cannot. In the next sub-chapter, the results of the Business Model Stress Testing Process are discussed. These results will create the insights, necessary, to determine how companies use the Business Model Stress Test.

#### **4.7 Business Model Stress Testing Process**

The result of the workshop is the filled in Business Model, as described in the previous section, and the Business Model Stress Test, which will be discussed in this section. The results of the filled in Business Model Stress Tests, can be found in the Appendix – Chapter IX, on pages 119 to 124. In this section the essential elements of the process of the Stress Test will be discussed.

Every Stress Testing started with selecting and compiling a list of scenario's, trends and uncertainties. For some workshops this was a long, broad and varied list, and some had shorter and concrete lists they would like to stress test their Business Model with. Some groups had difficulties selecting due to the focus of the workshop, or selecting extremes. The facilitator would give the participants examples to show the effect of a certain scenario, trend or uncertainty, which helped them select scenarios, trends, uncertainties and extremes.

When the scenarios, trends and uncertainties were selected and placed on the horizontal axis, and, nine or six elements, dependent on the Business Model Ontology, were placed on the horizontal axis, the Stress Test could start. The extremes, per scenario, trend or uncertainty are placed next to each other, to see the complete impact of a certain scenario, trend or uncertainty. In most sessions the facilitator asked the participants to stand in front of the A0 format on which a blank Matrix is printed, to actively participate during the Stress Test.

The first confrontation was done by the facilitator, in order to explain how the Stress Test is used, what to take, and what not to take, into account. Most groups started well after a long discussion on what kind of colour to give their first confrontation, however after 6 or 7 post-its, they started to doubt their own colour coding. Some groups changed the colour of some post-it's, due to the change in reference, compared to the start of the Stress Test.

After the first scenario was done, the discussions took less time, compared to the start, and the process slowly sped up. After this phase, the groups started to link the different building blocks, or dependencies within the Business Model. As stated during one of the workshops, "If this happens to Key Resources, than this will affect Key Activities and certainly Key Partners, which will increase costs". Filling in the confrontation matrix started slowly, but after every cell and scenario, confrontations took less and less time. When the matrix was completed, the whole matrix would be re-checked, and all the impacted cells were colour coded in order to grasp the complete picture of their Business Model.

The facilitator started the overall analysis on their Business Model and different scenario's. Questions that were discussed by the facilitator, and answered by the participants were, "What does this mean in reality?", "What are the steps you have to take in the future?", "Should you change your Business Model, or should you continue like this?"

## 4.8 Conclusion

In this chapter the results, as how they appeared during the research are presented to create a foundation for the Chapter – Analysis. In the first section, the different companies are discussed in order to get an understanding of the input for this research. The dynamics of the different groups changed every workshop, which was “controlled” by the facilitator, by adapting the style of facilitation, according to what the group needed. Some groups needed more guidance and support than others. The facilitator made sure that the input, for the Business Model, was at the right level, in order to prevent the “Garbage In=Garbage Out” principle occurring.

The developed Business Models have different foci, different disruption strategies and had a different approach of abstraction level. The main goal was to get all the participants on the same page before the Business Model Stress Test started. The process of the different Business Models, i.e. CANVAS and STOF, did not differ during the workshop, but the structure, i.e. four Domains or nine Building Blocks, as discussed before, did differ. Next to the structure, the focus of the workshops also differed, just like the disruption strategies. Stichting Zo-Dichtbij, with the platform for elderly people to stay at home longer, had a viable Low-End Strategy, with a focus on building the business at a high abstraction level, in order to get a structured overview of the platform. The company 4LittleBirds focused the workshop on their product, by testing the feasibility of the Tropical Hangout experience, which had a Disruption Strategy that can be categorized as Sustainable. For Holland Container Innovations, with the 4Fold Container, the workshop was focussed on the entire business, not solely on their product, and can be described by a Sustainable Disruption Strategy. The last company, FairShare, also had their focus on the entire business, and not only their goal, “Lottery as a Service for Charities”, which can be described by the New Market Disruption Strategy.

By all participating companies, the experience, and use of the Business Model Stress Test was positively classified. New perspectives, more structured discussions and for some participants, the Business Model Stress Test created insights in how the organisation operates. The most difficult part of the Business Model Stress Test was colour coding of the problems, thus, the colour that would describe a confronted cell, but when the initial post-it’s were placed, this process sped up.

Scenarios that were chosen for the Stress Test had a different focus for every company. Zo-Dichtbij stated mainly Long-Term scenarios with a specific focus on strategic feasibility, while 4LittleBirds stated mainly Short-Term scenarios, with a focus on feasibility in the existing market. FairShare also had Long-Term scenarios, but with a focus on feasibility in a new market. Holland Container Innovations described both Long-, and Short-Term scenarios, with a focus on Technology Development.

In this Chapter the results of the experiments, questionnaire elements and observations were discussed to create an understanding of the discovered data. To turn this data into information, the next step is analysing the data in order to find patterns and commonalities to gain new insights. The next Chapter discusses the analysed results and will state the different outcomes, which serves as input for the conclusion, which leads to answering the main research question.

## 5 Analysis

*This is the Fifth Chapter, Analysis. The different analyses that have been performed are described in the Third Chapter – Methodology, and the input variables for the analyses are described in the Fourth Chapter – Results. The Analysis is input for the Discussion, supports the Conclusion and leads to Recommendations that are all discussed in the Sixth Chapter – Discussion, Conclusion and Recommendations. The different analyses that were performed during this research are described in the Processes of the Workshops, Workshop Dynamics and the Business Model Stress Test.*

### 5.1 Workshop process

The workshops had the same structure, but the content was different, two types of Business Models were used, the results of the workshops differed, but the process the participants went through was similar. In the area of brainstorming there is a similar, but not identical phenomenon, which is called “The Creative Diamond”, shown in Figure 14. During the workshops the participant did not need to get new ideas, instead, the knowledge that is present, but mainly tacit, had to be structured and turned into visible and understandable information. This information is a combined perspective of multiple participants. In order to get the combined perspective, discussions and multiple iterations are necessary to reach this stage.

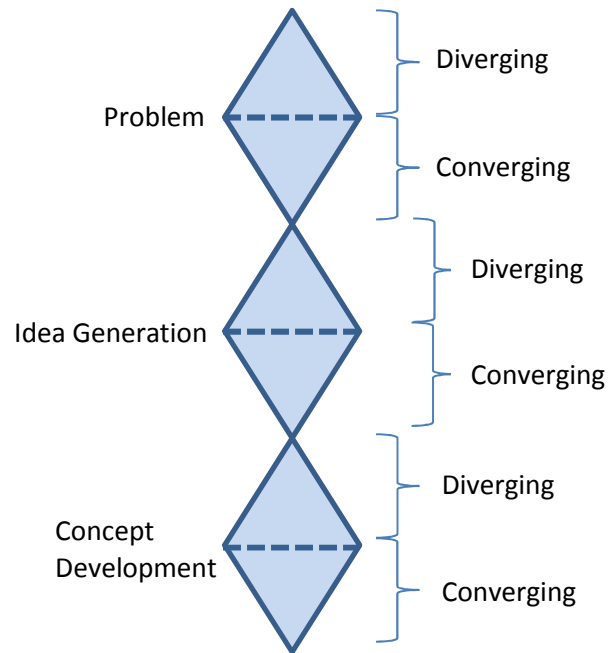


Figure 14 The Creative Diamond (Buijs & Van der Meer, 2013)

The general process of the workshops is shown in Figure 15, with “t” as a time indication, the blue lines are thoughts, ideas and perspectives, and the dots are participants in the workshop. The starting point is “t = 0”, this is before the start of the workshop and the participants all have their own ideas and opinions on a specific topic. After the workshop started, the designing of the Business Model starts, and the perspectives and ideas must be fitted into the Business Model Framework. Since this is not a copy and paste exercise, the different ideas, perspectives and thoughts have to be adapted in such a way that it will fit the framework. In “t = 1” the process of finding a fit with the Business Model is shown. The second step for the participant is to combine the fitted perspective with the other participants into a single shared perspective. As depicted in Figure 15, “t = 2” shows the intertwined thoughts, ideas and perspectives of the participants. This process step can be reached through sharing perspectives, thoughts and ideas, which will lead to discussion. Through discussion, and by filling in Building Blocks or Domains, the state of “t = 3” can be reached. The combined perspective of multiple participants is reached and will result in a solid basis on which can be built.

After reaching the common perspective in the first part of the workshop, the second part of the workshop is to test if this basis is as solid as it should be. With the Business Model Stress Test, the participants will search for a sturdier and more robust perspective, which is the Business Model. In Figure 15, “t = 4” describes the process flow of the participants. This flow is a result of four

independent flows that all seek the better and improved perspective, due to the stress that is put onto the Business Model. With several iterations and a number of discussions, the result in the end is shown at “t = 5”. The Business Model Stress Test shows that a Business Model should be prepared for any situation, and the participants should adapt their perspective, and therefore, their Business Model, based on the perspective of their target group. In this sense, the Business Model, a static representation of an organisation, should be transformed into a dynamic Business Model and make use of the capability of Agility, as discussed in chapter 2.7.

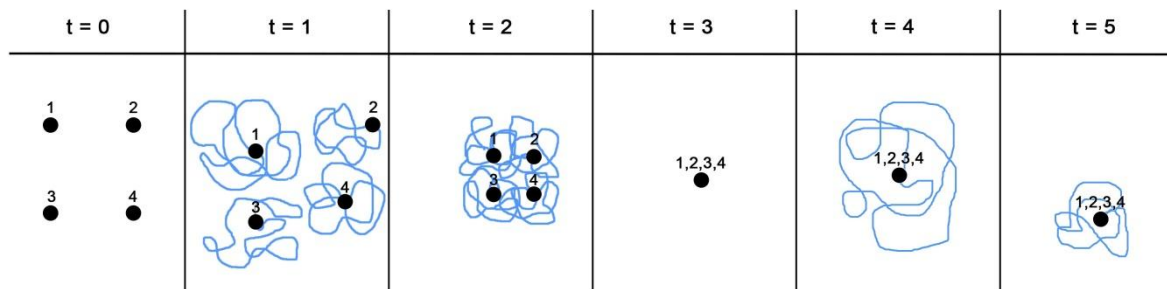


Figure 15 Process during the workshops, 4 participants and their thoughts, ideas and perspectives

The process of the workshops were analysed and discussed in this section. The process of the workshop is generally described in this section, but how the internal dynamics of every workshop varied, and what influenced the workshop dynamics is analysed and discussed in the next section.

## 5.2 Workshop Dynamics

During the workshops, different elements played a crucial role in the dynamics of the workshop. As discussed in Chapter 4.3 – Facilitation and Workshop Overview, the group dynamics differed considerably during every workshop. The facilitator had to change and adapt the style of facilitating according to the group composition, the level of knowledge the participants had, the focus they needed, the industry the participants were active in, etc. A long list of factors influenced the style of facilitation, but after combining the different observations, questionnaires and participating groups, new insights were gained.

The complete list of observations can be found in the Appendix - VII – Workshop observations overview. The three categories, Process, Problems and Ideas were analysed and clearly showed the different components of the facilitation style. The stimulating and helping facilitation style, in the workshop of 4LittleBirds, was necessary in order to get a Business Model that was suitable for the Business Model Stress Test. During the second workshop, 4LittleBirds repeatedly asked themselves what their focus and their vision was, what they wanted to do with the company and which direction to go in. The facilitator had to steer and support the participants considerably, in order to build and stress test the Business Model during the workshop.

When the last workshop was reviewed, the need for a facilitator was almost be redundant, due to the easy adapting and well informed team of FairShare. This group functioned very well, and the facilitator style could be considered as “oil to let the machine run smoother”. When the FairShare and 4LittleBirds workshops are placed next to each other, the biggest difference is the age. There is a saying “With age comes experience”, which would suggest, in the case of the Business Model workshops, that the higher the average age of the group is, the smoother the process of the workshop should be.



The different workshops, the facilitation style and the average age are placed next to each other in Table 16. The higher the age, the less stimulation and core input from the facilitator was required.

Workshop	1	2	3	4	5
Company	Zo-Dichtbij 1	4LittleBirds	HCI	Zo-Dichtbij 2	FairShare
Average age	40 - 48	21 - 30	29 -38	40 - 48	46 - 55
Age Category	4	2	3	4	5
Facilitation style	Analyst, Advise, Support	Stimulant, helping hand	Guiding, Process Optimizer, Feedback	Analyst, Controller	Oil of a good running machine

This could indicate two different things, which will be discussed further in the discussion, chapter 5.5 – Discussion, Conclusion and Recommendations.

Table 16 Average age and facilitation style

Workshop	1	2	3	4	5
Company	Zo-Dichtbij 1	4LittleBirds	HCI	Zo-Dichtbij 2	FairShare
Average age	40 - 48	21 - 30	29 -38	40 - 48	46 - 55
Age Category <sup>6</sup>	4	2	3	4	5
Facilitation style	Analyst, Advise, Support	Stimulant, helping hand	Guiding, Process Optimizer, Feedback	Analyst, Controller	Oil of a good running machine

When these findings are placed in the matrix of Business Model Familiarity and Organisational Life Cycle, other interesting aspects are visible. In Table 17 the Age Categories are placed in the corresponding cells. The Facilitation style corresponds with the age category, as described in the previous section, and when the age categories are replaced by the facilitation styles in Table 17, the difference in facilitation style can be linked to the Organisational Life Cycle and Business Model Familiarity.

Table 17 Organisational Life Cycle, Business Model Familiarity and Age Category

		Organisational Life Cycle	
		Start-up	Mature
Business Model Familiarity	Not Familiar	4Little Birds <b>2</b>	<b>3</b> Holland Container Innovations
	Familiar	Stichting Zo-Dichtbij <b>4</b>	<b>5</b> FairShare

*Note: In the original image, arrows indicate relationships between cells: a red arrow from (Not Familiar, Start-up) to (Familiar, Mature), a purple arrow from (Not Familiar, Start-up) to (Familiar, Start-up), and a black arrow from (Familiar, Start-up) to (Familiar, Mature).*

Considering the Organisational Life Cycle, the more mature the company is, the smoother the process will be and the less support the facilitator will need to give. Then the facilitator is able to focus more on the bigger picture. Due to the focus on the bigger picture, different pitfalls could be dealt with during the workshop and this results in a better Business Model.

<sup>6</sup> 1 = (0-20), 2 = (21-30), 3 = (31-40), 4 = (41-50), 5 = (51-60), 6 = (60+)



The level of familiarity of the Business Model also shows the higher level of quality of the process. This is a logical result of the fact that the participants that are familiar with the model and methods, can completely focus on the content, and do not have to put effort in understanding the model and grasp the methodology.

The biggest difference is between the not-familiar/start-up company and the familiar/mature company, as shown in this research. The difference between Not-Familiar/Mature and Familiar/Start-up is less obvious. The mature company has a good idea on where to go, their vision is strong and they have a clear goal. The start-up lacks this vision, which could be seen as flexible in that sense, but are familiar with Business Models, and unconsciously filled out the Business Model. The start-up can easily discuss their different perspectives in the framework of the Business Model and need less support during the workshop. On the other hand the mature company has more trouble adapting to this specific model and therefore needs more support during the workshop. Next to this, the facilitator can support the group better with filling in their Business Model than support the same group with creating their vision.

The group dynamics and what influenced the workshop process is discussed in this sub-chapter. The next chapter discusses the analysed Business Model Stress Test process, which, in comparison with this sub-chapter, has a more focussed perspective on the Stress Test and the relation between different concepts.

### 5.3 Business Model Stress Test Process

The Business Model Stress Test is a confrontation matrix in which scenario analysis is used to confront a Business Model. In the first section of this chapter, the process of the workshop is discussed as well as what the added value of the Business Model Stress Test was. In section 2.9 – Conclusion, the link between Business Models, Business Model Roadmapping and Market Disruption is made. In Figure 16 a small depiction is shown of this comparison, the larger version can be found on page 22. When the process analysis of the workshop and the comparison are put together, the following insights can be extracted:

Designing a Business Model occurs completely in the anticipation phase. The Business Model is an abstract representation of an organisation, and the organisation is generated in order to cope with certain needs and demands. The organisation expects certain things to happen, they sell product or deliver certain services, and this is in its core anticipation.

The decision process of the scenario analysis is categorized by two steps, “7. Evaluation of strategic options” and “8. From project to strategic choices (by the steering committee)”. These two steps are the core of the Business Model Stress

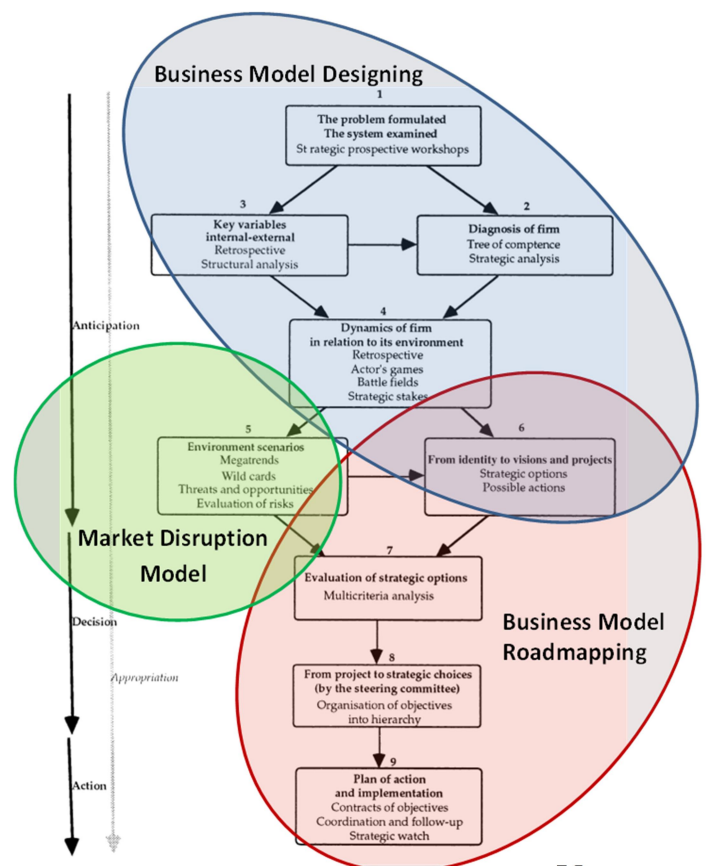


Figure 16 Scenario Analysis compared with Business Model Tooling

Test. The evaluation of strategic options is done during the complete Business Model Stress Test, selecting scenarios, colour coding and seeing the possible effects of a confrontation. The next step, from project to strategic choices is done in the last phase of the Business Model Stress Test. When the show-stoppers are clear and the effects of the scenarios on the Business Model are clear, the bigger picture is created, and this allows the steering group, or the participants of the workshop, to strategically choose which direction to head for, and which elements need to be reshaped or adapted in order to survive.

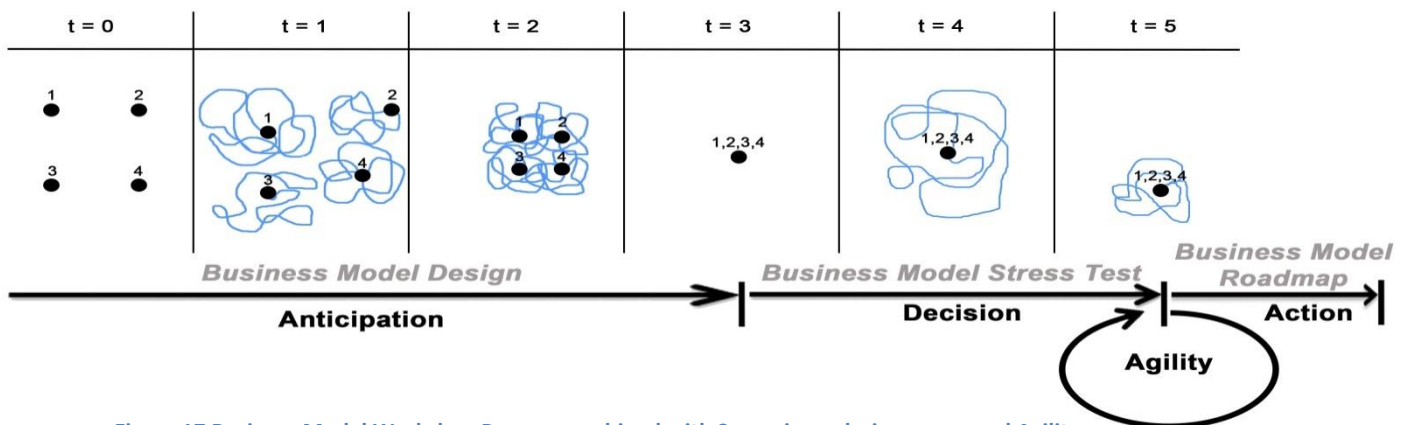


Figure 17 Business Model Workshop Process combined with Scenario analysis process and Agility

The last process step is “Plan of action and implementation”, which can be described by the Business Model Roadmapping. The result of the Business Model Stress Test is the input for the Roadmap.

In Figure 17 the comparison has been made between the Business Model workshop process and the Scenario Analysis process. The concept of Agility is also added in this figure due to the changing nature of Dynamic Business Models. The main reason for adding the Agility concept at “t=5”, is the newly formed group perspective. The anticipation and decision phases have to occur, in order to be agile, but due to the common perspective, the process phases are experienced differently. The process is not experienced from the perspective of a single participant, but as a group, even so more research is necessary.

When the concept of Agility is left out, the Scenario Analysis process and the process of the Business Model workshop are very similar. The different elements of the scenario analysis fit perfectly with the Business Model tooling, i.e. Business Model Design, Business Model Stress Test and Business Model Roadmapping. The steps that have to be taken in the scenario analysis, are very similar to the steps that have to be taken during the Business Model Workshop.

This section focused on the Business Model Stress Test Process and how the different concepts were related to this Business Model Tool. The next section gives an overview of the different concepts in relation with the companies. The companies have certain characteristics, which influenced the Business Model Stress Test workshop on different aspects, but these will be discussed in the next section, Company Analysis.

## 5.4 Company analysis

In this sub-Chapter the different companies are analysed, with respect to the different concepts discussed in the Second Chapter – Literature Review. The combination of different sources, i.e. the

questionnaire, observations, workshop results and theories, are used in order to analyse the data and state new findings.

The seven different concepts, as discussed in Chapter 2 – Literature Review, are confronted with the four participating companies, and are presented in Table 18. The confrontation between a company and the concept is discussed the coming section.

Table 18 Concepts are related with Company characteristics

Company	Stichting Zo-Dichtbij	4LittleBirds	Holland Container Innovations	FairShare
Business Model Familiarity	Familiar	Not-Familiar	Not-Familiar	Familiar
Life Cycle Stage	Startup	Startup	Mature	Mature
Focus of Scenarios and Workshop	Long term, Strategic feasibility	Short Term, Feasibility in existing market	Technology development focus, Short/Long Term Focus	Feasibility in New Market, Long Term Focus
Disruption strategy Ecosystem	Low-End Network of parties and regulation changes	Sustaining Focus on mass events, public opinion	Sustaining Standardized container market	New Market Lottery industry is a closed market
Market Dynamics Agility	Dynamic Agile	Dynamic Not Agile	Not Dynamic Not Agile	Not Dynamic Agile

**Business Model Familiarity** and **Life Cycle Stage** are distilled out of the pre-questionnaire, even though the companies were selected based on these criteria, this is discussed further in Chapter 3 - Methodology.

During the workshops, and in the pre-questionnaire, the companies were asked to compile a list of scenarios that they wanted to confront their Business Model with. After comparing the results of the selected scenarios during the Business Model Stress Test, commonalities were identified in the focus of selecting these scenarios. In Chapter 4.6, Table 15, page 50, the complete overview of all scenarios, used during the workshops, was presented. The **focus of the scenarios and workshop**, per company, was discussed in Chapter 4.6, but presented in Table 18.

The different **Innovation Disruption Strategies** that were identified in Chapter 4.6 are also presented in Table 18. *When the Scenario Focus and the Disruption Strategies are compared, it results in a perfect fit.* For **Zo-Dichtbij**, the scenarios focus on long-term and strategic feasibility of the platform, with a Disruption Strategy that can be classified as Low-End. Companies that follow Low-End strategies offer products with less performance compared to their competitors, which lowers the price: the willingness to pay is lower (Himmelweit, Simonetti, & Trigg, 2001). The platform will serve a large base of customers, with different revenue models, in order to get a sustainable business.<sup>7</sup> The platform has high upfront investments, and due to the lower customer price, the return on investment is prolonged, which leads to a long-term focus. The strategic feasibility is two-fold, first will the platform be used and by whom, and secondly will the customer base be large enough to generate enough revenue, and to sustain the minimum needs of the platform when in

<sup>7</sup> Sustainable Business is to have an economical valid Business, and Sustainable Strategy is the focus of the Business and does not directly relate to the economic aspects.

use. In this respect, the focus of the scenarios do follow the Low-End Disruption Strategy, and has been stated as a viable option.

**4LittleBirds** has a strong need to identify the feasibility of this product in the Festival Market in order to grow the start-up. The focus is short term, due to constraints in time, money and expectations of the founders of the company. The market exists already, but this product offers a better experience compared to the current options. How this will turn out is unknown, therefore looking at the feasibility is essential. The Disruption Strategy of 4LittleBirds is a viable Sustaining Strategy, due to the better performance of the product and the existing market.

In the container industry, a new type of container, 4FOLD, the foldable container of **Holland Container Innovations**(HCI), is competing against large incumbents, like Maersk. This new container type has been developed over many years, which resulted in the Technology Development scenario focus. Next to the current short term Technology Development, one of HCI 's founders focusses on the Long Term, by using Business Models. Both short- and long-term scenarios, were used to improve the chance of success for a sustainable business, by using a Sustaining Disruption Strategy.

If the new project have a chance of succeeding, is what **FairShare** needs to know. The project is well thought out, but to test the feasibility in the new market, a long-term focus is essential for the Business Model Stress Test. The scenarios had a long-term focus in order to test, if the Business Model was robust enough to function properly in a new market. In this sense, lottery as a service, for charities to use in order to gain extra revenues, is a New Market Disruption Strategy.

The **Ecosystems** of the companies, have been discussed in Chapter 4.4, Business Model Results, but are presented in Table 18. The ecosystems of the different companies are closely related to **Market Dynamics**, as presented in Table 18, which is discussed next.

The Market Dynamics of Stichting Zo-Dichtbij and 4LittleBirds can both be stated as Dynamic, due to the high external influences in these markets. For Zo-Dichtbij, the external influencers are the government, regulations and healthcare insurance companies. 4LittleBirds is active in the festival market, which is based on the public opinion, which is highly dynamic due to the continuous stream of new input, to keep the public interested. For Zo-Dichtbij the dynamic nature is not due to a continuous stream of new input, but due to the high impact the changes of parties in the network have on the whole system.

For the companies Holland Container Innovations and FairShare, the markets can be stated as Not Dynamic, due to the nature of the industries. Holland Container Innovations is active in the worldwide industry of containers which has strict standardized rules, e.g. ISO, that all organisations in the world have to abide to. FairShare is active in the lottery market, which is completely closed off and controlled by the government.

The last concept that will be presented is **Agility**, the ability to scan and respond to the market and adapt according to newly discovered information. Companies that scan the market are Zo-Dichtbij, 4LittleBirds and FairShare, this is mainly done by talking to customers, competitors, users of the products and by doing market research. These companies are less technology driven, unlike Holland Container Innovations, that demonstrates innovation like a Technology Push approach. The companies that adapt their Business model to the market needs are Zo-Dichtbij and FairShare, which

became clear during the workshops, they adapted their initial ideas after new market information was available. In the case of 4LittleBirds, the approach is to convince the consumers: festival organisations, that their product will affect the experience of the festival visitors positively, instead of adapting the product or market.

Holland Container Innovations has a quite linear approach based on the technology developed they stick with their Business Model. They do not scan the market, and do not adapt accordingly, since they have an internal perspective on building containers, Agility is not considered to be an issue. The company 4LittleBirds does scan, but does not adapt, which can be labelled as a Non-Agile approach. The companies Zo-Dichtbij and FairShare both scan the market, and adapt, which implies a focus on agility within these companies.

In this section the overview and the identified characteristics were discussed, and will be used in the next section. The Business Model Stress Test has been analysed, and will be discussed in the next section.

## **5.5 Business Model Stress Test Analysis**

The Business Model Stress Test results are discussed in Chapter 4.6, and are the basis for this sub-chapter. This analysis uses the Business Model Stress Test results and the different concepts, discussed in Chapter 2, to identify differences and commonalities between the different cases.

An overview of the Business Model Stress Test results is presented in Table 19. The elements that were discussed in the previous chapters, scenario focus and workshop focus are presented to understand why certain scenarios were chosen. The Scenarios are presented per company, and each red coloured cell is a problematic scenario, as discussed in sub-Chapter 4.6. The problematic Business Model Elements are coloured red in the Business Model CANVAS format, to be able to compare the different results. The overview of the Business Models can be found in the Appendix, Chapter - XI – Overview Business Model STOF and CANVAS.

Table 19 Business Model Stress Test overview

	Zo-Dichtbij	4LittleBirds	Holland Container Innovations	FairShare
Scenario Focus	Long term	Short Term	Short/Long Term	Long Term
Workshop Focus	Strategic feasibility	Feasibility in existing market	Technology Development focus	Feasibility in New Market
Scenario dimension 1	Competition	Capital	Quality production	Availability regulation and licenses
Scenario dimension 2	Fast      Slow	External      None	Go down      Go up	Negative      Positive
	Power of healthcare insurances	Festival market	Adoption speed	profit remittance
Scenario dimension 3	Enemy      Friend	Crashes      Growth + Luxurious	Go down      Go up	Low      High
	Privacy	Human Resources	Transport costs	Response Competitor incumbent
Scenario dimension 4	Closed      Open	Stable      Less      More	Go down      Go up	High      Low
	Digital Skills		Manufacturing speed	
Scenario dimension 5	Bad      Good		Go down      Go up	
Scenario dimension 6	WMO-Regulation changes			
Scenario dimension 6	Aging population			
Problematic Business Model elements (CANVAS)				

The most problematic Business Model Building Block is the Customers Segment. In every workshop, problems with respect to the customers were identified by the participants. Zo-Dichtbij had trouble in both workshops with Customers Segments, when competition would be fast, or when Digital Skills were bad.

Another building block that was stated as problematic in both workshops of Zo-Dichtbij was Key Partners. Due to the large network of involved actors in the platform, there is a high dependency, which could result in possible problems. The business of FairShare is highly dependent on the regulation and licences that need to be changed in order to start their business, which highly pressurizes the Key Partners building block for FairShare.

Revenue Streams is a problematic building block during three workshops, mainly due to external pressure from governments or competitors. In contrasts with Revenue Streams, Holland Container Innovations is the only company that had problems with their value proposition when certain scenarios appeared.

The last building block that caused problems during the workshops is Key Activities. During the workshops of 4LittleBirds and Holland Container Innovations, Key Activities were highly pressurized by external factors.

The least impacted scenarios are Cost Structure, Key Resources, Channels and Customer Relationship. In the cases of FairShare and Zo-Dichtbij, the Key Resource would be the platform, and since they are in such an early phase of development, they can still adapt according to the needs. This entails that this building block will play a major role in the future, when the platforms are built. For HCI, the resource is not the container, instead they are the IP and personnel, which are unaffected by the scenarios. 4LittleBirds does have valued Key Resources, investments in the Tropical Hangout, and it is interesting that this building block was not labelled as problematic.

Customer Relationship and Channels were the least focused Building Blocks during the workshops, although Customer Segments had the biggest impact on every Business Model. These two building blocks are the link to the customers, which is an interesting result that has been identified.

During the workshops, the focus was on how to make money, and not on the cost side of the business. Even though FairShare and Zo-Dichtbij have to build costly platforms, and Holland Container Innovations has high IP costs, the costs were discussed in a very short timeframe.

The combined overview of the impacted Business Model Building Blocks, presented in the CANVAS Business Model Ontology, is presented in Table 20.

**Table 20 Problematic Business Model CANVAS Building Blocks during the Business Model Stress Test workshops**

3	2	1		5
		3		

Another aspect that impacts the outcome of the Stress Test is the relation between the selected scenarios and the Disruption Strategy. The scenarios are selected by the participants, and based on the biggest impact on their Business Model. The scenarios can be related to a Disruption Strategy, as discussed in Chapter 2. The scenarios were identified with one of the three Disruption Strategies, by using the method of Backcasting(Dreborg, 1996). After the identification and labelling of the scenarios with a Disruption Strategy, the problematic scenarios and the new labelled scenarios were combined in Table 21. The three different disruptions, Low-End, Sustaining and New Market, are differently coloured, Blue, Green and Yellow, respectively. Colours of different cells could differ slightly from the original colour, but this is needed in order to see the differences in cells. The red boxed, and red dotted, cells are the problematic scenarios that have been identified, as previously discussed.

All companies have their main share of scenarios based on their disruption strategy, except for Zo-Dichtbij. This was a deliberate choice, in order to see how these types of scenarios would affect the Business Model, instead of the Low-End Strategy, due to the convinced success of the platform.

Table 21 Innovation Disruption Strategies combined with (Problematic) Scenarios

	Zo-Dichtbij	4LittleBirds	Holland Container Innovations	FairShare
Disruption Strategy	Low-End Disruption	Sustaining Disruption	Sustaining Disruption	New Market Disruption
Scenario dimension 1	Competition	Capital	Quality production	Availability regulation and licenses
	Fast Slow	External None	Go down Go up	Negative Positive
Scenario dimension 2	Power of healthcare insurances	Festival market	Adoption speed	profit remittance
	Enemy Friend	Crashes Growth + Luxurious	Go down Go up	Low High
Scenario dimension 3	Privacy	Human Resources	Transport costs	Response Competitor incumbent
	Closed Open	Stable Less More	Go down Go up	Low High
Scenario dimension 4	Digital Skills		Manufacturing speed	
	Bad Good		Go down Go up	
Scenario dimension 5	WMO-Regulation changes			
Scenario dimension 6	Aging population			

In Table 21, the overview of the selected scenarios and the labelled Disruption Strategies per company, are combined with the problematic scenarios. In this overview, the 15 identified problematic scenarios, do not match the disruption strategy in 11 cases. When the Zo-Dichtbij case is left out, the total would be eleven problematic scenarios, with seven cases that are not aligned with the disruption strategy. This is particularly clear for the companies that are unfamiliar with Business Models, and less so for the experienced Business Model users.

4LittleBirds is shorthanded when it comes to personnel, which is the only problematic scenario in their disruption scenario. The company FairShare has two examples in which their disruption strategy causes a problem within a scenario. These problems are mainly caused by the high dependency on external forces, which would occur in every chosen strategy. In general it can be stated that, scenarios that deviate from the initial disruption strategy focus, are more likely to cause problems for the companies when compared to scenarios that are consistent with the disruption strategy.

This section discussed the analysis of the Business Model Stress Test Results, in which the Business Model Elements, the Scenarios and the Disruption Strategy are combined in order to see commonalities and discrepancies. The next section will conclude the Analysis Chapter, by giving a complete overview of all the different concepts that are discussed in this Chapter.



## 5.6 Conclusion

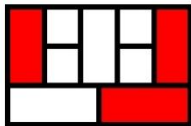
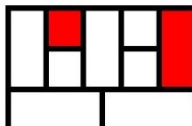
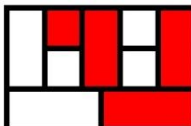
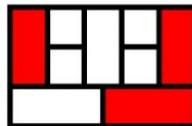
In this chapter, different analyses have been performed in order to answer sub-research questions, and create an overview of the different relations between this research and the existing concepts. The next chapter uses these findings as an input, in order to answer the main Research Question.

The initial criteria for selecting companies were Business Model Familiarity and Organisational Life Cycle Phase. These criteria were used to create Table 22, the four quadrants distinguish the four different companies that participated in this research.

Two elements that stand out in this table are Agility and Market Dynamics. When the concepts of Agility and Market Dynamics are compared for the participating companies, an interesting result appears. Agility and Market Dynamics should be in sync, as discussed in Chapter 2, in order to have a successful company. For two companies, Zo-Dichtbij and Holland Container Innovations, this is the case. Zo-Dichtbij operates in a dynamic market and has Agile capabilities, while Holland Container Innovations does not have these capabilities, nevertheless it still has a good chance of success, since it operates in a non-dynamic market. FairShare and 4LittleBirds are both out of sync, but FairShare has agile capabilities, while it operates in a non-dynamic market. FairShare will use these capabilities, but it will not add any extra value, due to the lack of dynamics in the market, which does not lower or increase the chances of success. In the case of 4LittleBirds, they lack the agile capability, but do operate in a dynamic market, which drastically lowers the chances of success for this company.

The next chapter discusses the main findings, contributions, recommendations, limitations and future research. The last chapter, Chapter 6 – Discussion, Conclusion and Recommendations, answers the main Research Question and will reflect on this research.

Table 22 Complete overview Concepts and Workshop Result

		Business Model Familiarity				
		Familiar		Not-Familiar		
Organisational Life Cycle	Startup	Company	Stichting Zo-Dichtbij		4LittleBirds	
		Product	ICT Platform		Tropical Hangout	
		Company Culture	Entrepreneurial and Learning		Entrepreneurial	
		Ecosystem	Network of parties and regulation changes		Focus on mass events, public opinion	
		Market Dynamics	Dynamic		Dynamic	
		Agility	Agile		Not Agile	
		Age Category	40 – 48(4)		21 – 30(2)	
		Facilitation Style	Analyst, Controller, Advise, Support		Stimulant, helping hand	
		Business Model Ontology	STOF		CANVAS	
		Focus of Scenarios	Long term		Short Term	
		Focus of Workshop	Strategic feasibility		Feasibility in existing market	
		Disruption strategy	Low-End		Sustaining	
		Problematic Business Model Elements(CANVAS)				
Scenario 1	Competition		Capital			
	Fast		Slow	External	None	
Scenario 2	Power of healthcare insurances		Festival market			
	Enemy	Friend	Crashes	Growth + Luxurious		
Scenario 3	Privacy		Human Resources			
	Closed	Open	Stable	Less	More	
Scenario 4	Digital Skills					
	Bad	Good				
Scenario 5	WMO-Regulation changes					
Scenario 6	Aging population					
		Familiar		Not-Familiar		
Organisational Life Cycle	Mature	Company	Holland Container Innovations		FairShare	
		Product	Foldable Container		Charity Lottery Platform	
		Company Culture	Innovative, Entrepreneurial		Entrepreneurial	
		Ecosystem	Standardized container market		Lottery industry is a closed market	
		Market Dynamics	Not Dynamic		Not Dynamic	
		Agility	Not Agile		Agile	
		Age Category	29 – 38(3)		46 – 55(5)	
		Facilitation Style	Guiding, Process Optimizer, Feedback		Oil of a good running machine	
		Business Model Ontology	CANVAS		CANVAS	
		Focus of Scenarios	Short/Long Term		Long Term	
		Focus of Workshop	Technology development		Feasibility in New Market	
		Disruption strategy	Sustaining		New Market	
		Problematic Business Model Elements(CANVAS)				
Scenario 1	Quality production		Availability regulation and licenses			
	Go down		Go up	Negative	Positive	
Scenario 2	Adoption speed		profit remittance			
	Go down		Go up	Low	High	
Scenario 3	Transport costs		Response Competitor incumbent			
	Go down		Go up	High	Low	
Scenario 4	Manufacturing speed					
	Go down		Go up			

## 6 Discussion, Conclusion and Recommendations

*This is the Sixth Chapter, Discussion, Conclusion and Recommendations. The current body of knowledge is discussed, as described in the Second Chapter – Literature Review, in relation with the new obtained knowledge described in the Fourth Chapter – Results and Fifth Chapter - Analysis. The findings of this research are concluded, by answering the Research Questions, stated in the First Chapter – Introduction, and use the results of the Fourth Chapter and the analyses of the Fifth Chapter. The Recommendations are a result of the conclusion and uses input of the Fourth Chapter – Results and Fifth Chapter – Analysis. This last chapter will describe the Main Findings and their contributions, state Recommendations, discuss the Limitations of this research and propose Future Research in the last section.*

### 6.1 Main Findings & Contributions

In the Introduction, the objective of this research was formulated, which stated that the usability of Business Model Tools, with a specific focus on Business Model Stress Testing, should be improved, in order to increase economic performance and innovativeness of Small and Medium sized Enterprises. Next to the practical contribution of this research, the scientific community would benefit from the insights on how Business Model Stress Testing would relate to different concepts, such as Agility, Market Dynamics, Innovation Disruption, Organisational Life Cycle and Business Model Familiarity. All of these different elements led to the main research question, which was stated as:

**How do Small and Medium Sized Enterprises, familiar and unfamiliar with Business Model Tooling, and different lifecycle stages, use Business Model Stress Testing in order to be more agile in responding market dynamics?**

The main research question is answered by answering the sub research questions, which are answered in this sub-chapter and the next. After the main findings, the contributions for Science, Society and the Technology Manager are discussed.

#### 6.1.1 Main Findings

In this research the focus was on the users, with respect to the use of the Business Model Stress Test, and how different users used the Business Model Stress Test. The distinction between the different users is stated in the first two sub research questions. The first sub research question, as described in the introduction is:

**Is there a knowledge gap between familiar and unfamiliar users of Business Model Tooling and the way they use Business Model Tooling, i.e. Stress Testing?**

Familiarity of Business Model Tooling did influence the process of the workshop for both groups. The unfamiliar groups started slow, due to the learning effect of getting familiar with the Business Model. All the steps were taken by these groups, due to the right amount of information to fathom for the user, and resulted in a decent pace of the workshop. The familiar participants started off smooth, since information was known, but as the workshop progressed, steps were skipped. The participants rushed through the workshop, and the skipped steps, which would differ per workshop, had to be “fixed” later on in the workshop. The participants that were familiar with Business Model Tooling, were able to use more of the potential the workshop had to offer, compared to the

unfamiliar participants. ***To answer the sub-research question, a knowledge gap has been identified between familiar and unfamiliar users of Business Model Tooling, with specific focus on the Business Model Stress Testing Tool.***

The second sub research question, also related to the distinction of different users, is related to the different Organisational Life Cycle stages of organisations. The sub research question is defined in the introduction as follows:

**Is there a knowledge gap between the Startup and Mature life cycle users of Business Model Tooling and the way they use Business Model Tooling, i.e. Stress Testing?**

Influence of the Life Cycle stage on Business Model Stress Testing is affecting the workshop process in such a way that it influences the quality of the workshop output. The lack of focus of the company and the understanding of their own market, slows down the process, and results in discussions to clarify the lack of focus and market understanding. The mature companies have a better focus, better know what the level playing field in the market is, and how to translate this into the Business Model framework. With regard to the Business Model Stress Test, the mature companies have a broad network of associates that can support them in reaching their goal, and are better able to tackle scenarios. ***To answer the first part of the second sub research question, there is a knowledge gap between Startups and Mature companies. This knowledge gap is mainly due to the level of informedness on their own market, which is higher in mature companies.***

In literature (Gartner, Starr, & Bhat, 1999; Nooteboom, 1994; Tarabishy, Solomon, Fernald Jr, & Sashkin, 2005), Startups are suggested to be more flexible compared to larger organisations. In this research, this was noticeable during the workshops, but this had considerable side effects. The Startups were more flexible in designing their Business Model, compared to Mature organisations, but this was more related to a lack of focus than to the effect of a flexible positioning. The Startups lacked focus due to, a loose vision, underdeveloped understanding of customer segments, unawareness of product impact, and most of all, no concrete idea on how to make money. In the paper of Stam and Schutjens (2005), Startups were categorized, after a longitudinal study of six years, as focused and unfocused. This would suggest that flexibility of Startups could still be noticeable during Business Model Workshops, but that the variable “Focus” is the more determinant factor for influencing the quality of the Business Model Stress Test results. During this research, the Mature companies were more focused on testing their Business Model than developing the correct Business Model, as was the case with the Startups. To answer the second part of the second sub research question, ***the Startup and Mature companies use the Business Model Tooling differently. The Startup companies use the Business Model Designing as a structured approach to create focus, and the Business Model Stress Test to test the correctness of their focus. While Mature companies use the Business Model Designing to create an overview, and the Business Model Stress Test to improve their Business Model and test how to change their Business Model if the market demands this.***

**How does Business Model Stress Test handle scenarios with regard to a Sustaining Disruption, a Low-End Disruption and a New Market Disruption?**

The three different disruption strategies were all successfully used in the Business Model Stress Test during this research. The different companies fitted a main Disruption Strategy, but some groups

decided to test the other two disruption strategies for their Business Model in order to see how this would affect their Business Model. With respect to the perception of the Disruption Strategy, the position within the industry could be perceived as a different strategy, as to what the companies' actual focus strategy is. The focus of the chosen scenarios, and that were not aligned with the chosen Disruption Strategy, would most probably cause problems for the Business Model. Thus, the use of Disruption Strategies as scenario input, could indicate if a Disruption Strategy is aligned with the designed Business Model. ***To answer the third sub-research question, the Business Model Stress Test can handle the Disruption Strategies very well, and even indicate the alignment between Business Model and Disruption Strategy.***

The fourth sub research question relates to the capability of Agility and how the Business Model Stress Test can influence this capability. The sub research question is formulated as follows:

**How does the Business Model Stress Testing tool affect the capability of Agility?**

In this research, it became clear that the added value of the Business Model Stress Test for the companies, was the structured approach for discussing the current and future position of the company in the market. During the Business Model Stress Test, changes in perspective, or goals of the company were made, that translated in a more market aware company. The ability to Scan the market and respond to the market by adapting, according to new insights and information, can be classified as Agility. ***The Business Model Stress Test would lead to more agile Small and Medium Sized Enterprises, regardless of the familiarity with Business Model Tooling and Life Cycle stage.***

The last sub research question that was posed in the Introduction was related to the recommendations for improving the Business Model Stress Test. The fifth sub research question is:

**What recommendations with regard to the Business Model Stress Testing tool can be formulated?**

In the next section **Error! Reference source not found.** – Recommendations, the recommendations are stated that will improve the Business Model Stress Test and Business Model Tooling. But next to these research questions, other interesting findings were found that will be described next.

Scenario Analysis has a certain approach that is described by different process elements, anticipation, decision and action. These elements can be described by certain Business Model Tools, and the observed process of the workshops. As stated by Shadish et al. (2002, pp. 16-17) "*Fallibilist falsification states that multiple observations, across multiple theories, can have special fact-like status, they can never be fully justified as completely theory-neutral facts.*" which indicates that this process is generally applicable in the Business Model research area.

Another interesting aspect is the relation between Market Dynamics and Agility. Companies that are active in dynamic markets, need to be Agile in order to survive, else the market changes and the company does not, which creates a discrepancy between demand and supply. The companies that are active in markets that are not dynamic, can be either Agile, or not. The market will not change, and therefore the company does not have to scan the market for potential change. Thus, the company must have the Agile capability if the Market is Dynamic, and does not necessarily has to be Agile when the Market is not Dynamic. What these findings contribute to the world and to science is explained in the next section.

### **6.1.2 Scientific Contribution**

The knowledge gap between Life Cycle stages of Organisations and the use of Business Model Tooling can be seen as a, documented, bridge between two research areas. Business Models is a relative new area of research, and has been related to different theories, concepts and research areas in relation to business, but not specifically to Business Models and the use in different Life Cycle stages.

Another new connection to the Business Model Research is the relation between Agility, Market Dynamics and Business Models. The fact that Business Stress Testing affects the Agile capability positively, which in turn increases the success of Organisations in Dynamic Markets, is unheard of.

The other interesting relation, to better align organisations, is the Innovation Disruption Strategies and the Business Model Stress Test. The fact that misalignment of the Disruption Strategy and the chosen scenarios are problematic during the use of the Business Model Stress Test is not covered in research yet. This has to be researched further in order to better determine the cause and effect of this relation.

Facilitation of Business Model Workshops in relation to Business Model familiarity has not explicitly been described in research and this research could be a stepping stone for follow up research. The facilitation style during the workshops and the age of the participants has not been described in the Business Model research area, but has been described in creative facilitation literature (Buijs & van der Meer, 2013).

Next to the differences between Organisational Life Cycles and Workshop Processes, the topic of Agility has been touched upon in this research. The insights created due to this thesis, by combining Business Models and Agility, can be the initial start of a, until now, theorized Business Model. The Dynamic Business Model that can change and adapt according to the circumstances, can build upon the concept of the scenario analysis process in combination with the concept of Agility.

### **6.1.3 Societal Contribution**

The goal of the European Union, in which they want to improve the economic performance and innovativeness of Small and Medium sized Enterprises, is one step closer due to this Thesis. The first benefit is that the Envision Project is one step closer in reaching their goal of building an ICT platform where the world, but especially Small and Medium Sized Enterprises, can experiment with Business Models.

The world will benefit due to the improved applicability of Business Models, after implementing the recommendations of this Thesis. Next to the improved applicability, the understandability of Business Models has also increased, not only for the participants of the workshops and the researcher, but also the future users of the Envision Platform.

Societal contribution is not necessarily contribution for the entire world, but can also be the four companies that participated during the workshops. These companies have benefitted considerably, as they stated in the questionnaire and during the workshop. Some companies even changed their complete view after the workshop and felt the positive effects in the weeks that followed.

The last contribution to society is that this thesis will support the researcher in becoming a Master of Science of the TU Delft. The knowledge the researcher acquired during this research will be used in the society to help companies, start-ups or people, to better prepare them for the future.

#### 6.1.4 Contribution for Management of Technology

Managers of Technology are the link between the Business and Technology. By understanding what Technology is, what it does, and what it can do on the one hand, and understanding what the Business demands, what it needs and what should be done on the other hand, the manager can maximise overall performance of the organisation. This Thesis gives insights in how the Business Model Stress Test is used by Small and Medium sized Enterprises, and what the effects of the Business Model Tool are on the organisation.

The Business Model Stress Test can be a key asset, after mastering the tool, for any Technology Manager, due to the structured approach and the insightful results. The use of Innovation Disruption Strategies, as input for the scenarios, is a new concept that has not been researched before, but essential for Managers of Technology. Managers of Technology deal with question like *“What technologies do we need and when?”* or *“Do we procure the technology we need with our own research capabilities, in collaboration with outside parties, or by acquiring it or licensing it from others?”*(Communication TPM, 2015). The Business Model Stress Test supports the Manager of Technology to make these decisions easier, in the sense that the structured approach can identify show-stoppers and inconsistencies before problems start occurring.

## 6.2 Recommendations

Recommendations with regard to improvements of the Business Model Stress Test, and what should be taken into account for the online platform of Envision, are described in this section. The recommendations are a list that is compiled from the observations, Appendix VII – Workshop Observations Overview, and statements of the participants in the questionnaire.

- Explanation
  - o Walkthrough of complete tool
  - o Walkthrough of different elements
  - o Video explanation
  - o Help button to see what the input of a section should be
  - o Example of negative scenarios can have positive effects
  - o Disruption of external effects should be minimized
  - o Examples of companies now and over 10 years
  - o Examples of companies now and 10 years back
  - o Scenarios are assumed to happen, even if the chances are slim
- Expectation management
  - o Make sure the users understand what the result will be, *“what you put in is what you get out”*, *“Garbage In = Garbage Out”*.
  - o Indicate what the duration of each Business Model Tool will be
  - o Single Platform for all Tooling
  - o Clear vision before the start of workshop
  - o Indicate what the process will look like
  - o Conflict can improve Workshop results

- Participants are equal within the workshop
- Input variables
  - Select scenarios, trends and uncertainties from a platform list
  - Define own scenarios, trends and uncertainties
  - Pre-Questionnaire for information collection
  - Select Revenue Models from a list, which shows the effect on the Business Model
  - Target Groups, Customer Segments, Key Partners automatically get the same colour
  - List of customer segments, target groups and partners, and place them in a network in the second step
  - Use a Parking Space for “Random” variables
  - Own selection of colours for the Business Model Stress Test
  - When list of input is too big, make a top-3
  - Discuss one market per session
- Paying add-ons
  - Simulation of effects on Business Model
  - Business Model Community area
  - Support centre
  - Calculation Model of Business Model Tools
  - Analysis of Business Model Tool Expert
  - External expert via matchmaking portal
  - Business Model creation by expert
- High level of security
- Smooth User Experience
  - Structured process
  - Dare to Differ is very experienced in optimizing User Experience
  - Business Model Tooling Results, must be downloadable completely or sections
  - Selection of user experience level: Beginner, Moderate, Expert
  - Selection of user criteria(start-up, low educations, etc.): Decision Tree that assigns different Business Models to different sort of user.
  - Fill in example Business Model with tips and tricks for first time users
  - Homework for preparation(automatic input in system)
  - Discuss one scenario in the Business Model Stress Test at a time
  - Show the overview of the Business Model Stress Test between scenarios
  - Automatic incorporation of results(BM>BMST>BM Roadmap)
  - Standing up energizes participants
- Incorporate Workshop experience
  - Teamwork process: sharing ideas, opinions and discussions
  - Facilitation
  - Questions pop up during use of Business Model Tooling to motivate, structure or help users

Next to the list of recommendations for the Business Model Stress Test and the different aspects that need to be taken into account for the Envision platform, the company 4LittleBirds gets a recommendation. The current status for 4LittleBirds is the misalignment between the Dynamic Market and lack of agile capabilities. The researcher therefore proposes to follow the “Lean Startup



Method” of Eric Ries(2011). This method supports Startups to become more Agile, which could be the solution to close the gap between Agility and Market Dynamics for 4LittleBirds.

### 6.3 Research Limitations

The limitations of this research are present due to the experimental element in this research. The experiment had limited constraints, compared to a normal workshop concerning Business Models, but the participants had to fill in a questionnaire before and after the workshop. The questionnaire is focused on specific questions that the researcher needed for the research, but could be interpreted differently by the participants. The validation of the questionnaires is the first limitation in this research, due to the lack of an iterative process in which the questionnaire could be optimized.

The second limitation is the use of observation during the workshops. The observation skills of the researcher were not developed at the start of the research, but improved during the research, which is the principle of “Learning by Doing”, but is still not at the level of a professional observer. This automatically is also the third limitation, the improvement of the observation skills is not constant and could have influenced the final results.

The generalizability of this research is also limited, due to the low amount of experiments performed in this research. This research had limited amount of time and resources, in expert facilitation availability, which resulted in the scoped research.

Other limitations are the limited number of workshops, limited number of participants and the limited amount of time, which resulted in less data, questionnaires and workshops, and less time to analyse all the information properly with support tools.

The largest influence on the whole research are the differences in workshop approach. This entails the differences in workshop duration, different use of Business Models, different locations, different use of support tools and participants that participated multiples times. The duration of the workshop differed due to agenda constraints, but make the comparison of the different workshops less valid. The differences in location could have influenced the participants considerably, external environment compared to familiar environment, but the facilitator was considerably influenced, due to the change of support tools and change of environment.

Another aspect that could have influenced the un-familiar participants considerably was the homework that was sent to 10 participants before the workshop. The homework discussed how the tool is used and what input should be covered in which section. Even though this homework has the same level of depth as one would get with self-study, it could have influenced the participants considerably. As slightly mentioned in the previous sentence, self-study also affects the participant and hence, the workshop. The self-study of participants is not controlled, but was checked with the after-questionnaire if participants did study before the workshop, which was the case for 5 out of 12 participants that did not get homework beforehand.

During the workshops of the Living Lab, Zo-Dichtbij, the participants were all very experienced, and all made good points during the workshop. Due to this group composition, the different participants could clash with each other, in matter of opinion, perspective or perspective on the end-goal. This

effect could have influenced the results of how a start-up, familiar with Business Models, use the Business Model Stress Test.

Next to the external factors that influenced this research, the internal factor that could have influenced this research the most, is the researcher. The researcher is rather inexperienced with doing research on this level, and had to be guided in order to make sure the basics in this research are of an acceptable level. The results could be interpreted differently by experienced researchers, and the experiment itself could also be completely altered in order to get better results.

Using different Business Models during the workshops showed interesting differences and similarities that are stated in literature. The Business Model CANVAS is loosely defined, in the sense that it leaves much room for interpretation in the designing stage of the Business Model (Bouwman et al., 2012). This resulted in a discrepancy between participants during, and between workshops. Specifically due to the different ideas on how building blocks had to be filled in. Long and intense discussions would lead to lower quality results (Buijs & van der Meer, 2013), due to the less effective time spend on building or stress testing the Business Model. The STOF Business Model on the other hand, would never fit in a workshop session, as done in this research, to build an entire STOF Business Model. This is mainly due to the cumbersome and laborious steps that have to be taken in order to complete this Business Model (Bouwman et al., 2015). This Business Model was finalised by a Master Student, who took weeks to complete the Business Model.

## 6.4 Future Research

Business Models, and specifically in relation to the different concepts discussed in this thesis, is a potential booming research area. This research area is still developing, and researching, new Business Models to improve the status quo. Different authors are working on combining Business Models with other research areas, such as; (Baker, Miner, & Eesley, 2003; Eisenhardt & Martin, 2000; Eisenhardt & Brown, 1998; Trimi & Berbegal-Mirabent, 2012).

Questions that are stated in this research area implies that this research is still in its initial phase of research, e.g. *Is there any connection between firm performance and how the Business Model is Designed* (Trimis & Berbegal-Mirabent, 2012, p. 462)? Statements that show in which direction this research area should be heading are mentioned multiple times, e.g. *“According to Andries and Debackere (2007), business models should be adjusted in parallel to the firm’s life cycle evolution.”* As Eisenhardt and Martin (2000, p. 1118) conclude in their paper on Dynamic Capabilities, *“We conclude that long-term competitive advantage lies in resource configurations, not dynamic capabilities. Considering high velocity markets”*. Which implies that Business Models should be Dynamic in nature instead of Static.

For future research, the focus should be on Dynamic Business Models based on Big Data. If companies can use Big Data in order to optimize their Business Model, thus, analyse market trends, media, and other sources of information, and adjust the company in such a way that profits is maximized, the sky is the limit. At this point in time, these claims sounds futuristic, but tomorrow this will be reality, and spooky things might happen with the world.

A first step would be a longitudinal study, companies that have used the Business Model Stress Test, and see how the tool changed the capabilities of the companies. When the effect of the Business

Model Stress Test is clear, the Dynamic Business Model can be identified, since the different variables of companies are clear, and this allows the Business Model to automatically adjust.

As stated in the Scientific Contribution, the relation between Disruption Strategies and the Business Model Stress Test could lead to very interesting new insights for better aligning the corporate strategy.

Another topic that has been touched upon is the Disruption Strategy and how different actors perceive this strategy. Interesting insights would be to be able to develop a Business Model that would focus on a different aspect than perceived from outside, in order to stay a step ahead of competition, or how to combine two different disruption strategies at the same time.

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## I Preparing the Master Thesis

Gaining insights for this research is not only done during the research, but, (un)consciously, also before the research started. The two sections discussed are gaining insights and preparing the workshop.

### *Gaining insights*

To grasp the practical, and scientific side of the research, different activities were undertaken. The first activity that supports this research is the course Creative Facilitation. The goal of this course is to let an inexperienced student, get familiar with facilitating creative sessions, brainstorm sessions. The student will be taught to use certain tools and processes to steer a group during a brainstorming session. By practicing facilitation with students during the lectures, the student gets prepared to do an external session, with a company or government. This course has given the researcher insights in how to setup the workshop, how to manipulate energy levels during a session, when to do breaks, etc. These insights helped with setting up the workshop, and discuss the workshop with the facilitator.

In order to grasp the idea of Business Model Workshops, the researcher joined a Business Model Design Workshop at the start of the research. This workshop was focused on building an initial Business Model for the company trac.FM. At the headquarters of the company in Amsterdam, the Business Model Canvas was used to develop the Business Model. During this session, 6 participants, 1 facilitator and 1 observer were present. This workshop offered insights on the difference between Brainstorm sessions, which with the researcher is familiar with. The insights gained are incorporated into the Workshop overview, which was setup together with the facilitator.

### *Preparing the workshop*

The interview with the facilitator can be found in Appendix II - Interview Workshop Professional. The general overview and the script of the workshop can be found in Appendix III – Workshop Overview.

The workshop itself has certain key topics that it will discuss, but how the discussion during the workshop itself develops, is part of the experiment. We can control the general outline of the workshop, but not the content itself. The process of a workshop could differ greatly, as shown in Figure 18, with the three colours reassembling three different workshop sessions. The first black block is the introduction of the Business Model Design, with the process of the Business Model Design as the three different colours. The second block as the introduction of the Business Model Stress Test, with the process of the Business Model Stress Test after this, also in three different colours. The third block is the start of the evaluation, with the processes in three colours afterwards. The final block is the end of the session.

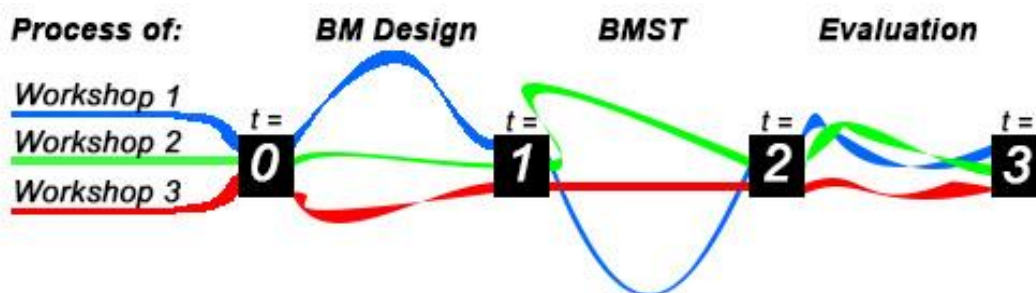


Figure 18 Workshop Process of three different sessions

## II Interview Workshop Professional

### *Interview – Timber Haaker*

Date: 07-05-2015  
Time: 11:35 – 12:30  
Company: Innovalor  
Place: Delft

#### **Reason of interview**

Timber has extensive experience in giving workshops, mainly with a focus on Business Model Tooling, and understands what is necessary to make a workshop work smoothly. In order to set up the workshop and to incorporate all the different elements that could interfere with the research objective, the tacit knowledge of Timber is essential to bring the workshop to a good end. The interview is an open interview, with the Business Model Stress Testing workshop as the core focus of the interview. The following section is a dense summary of the interview.

#### **Summary**

##### **Workshop overview**

The workshop will consist out of two parts, the Business Model Designing and the Business Model Stress Test, with a time division of two times two hours. In the total of 4 hours, the company will fill in their Business Model(BM) and continue with that BM in the Business Model Stress Testing. The team that will do the workshop should be a diverse group, to ensure that most angles from within the company are covered. This could mean that the CEO, the factory manager and a financial manager should work together. The group must be dynamic, so preferably more than 3 people, but decisions should be taken quickly, which is possible with a group of no more than 8 people. If the group is bigger, the groups could split up and fill out the BM and the Business Model Stress Testing in their group, and give a short summary on their BM and Business Model Stress Testing , to see if there are differences in perspectives.

##### **Pre-work**

Before the BM and the Business Model Stress Testing can be used, some preparation is needed to make the workshop run smooth. In a normal setting, the participants need to read some initial literature to understand what they are doing during the workshop. The facilitator needs to some more preparation; choose the type of BM that fits the company, set up scenarios that also fit the company and if these scenarios give a sense of urgency to the participants.

The BM is chosen based on the preferred outcome of the company, e.g. general insights in how they create value, and how they capture revenue, and very general scenarios that could arise, demand a less detailed BM, and is more a brainstorm setting, which the BM CANVAS fits perfectly. The intrinsic motivation of the company needs to be identified in order to determine what tools to select. The scenarios that are selected should also fit company and their needs. These scenarios are trends or uncertainties, in the future or in the market, and can be chosen from general formulated trends by the EU, or concerns from the company about certain uncertainties. The scenarios are selected after consultation with the company.

##### **The Workshop**

The workshop is divided in four steps that will lead to a filled out Business Model Stress Testing. The different steps are shown below.

1. Setting up the Business Model

Fill out the BM of the company. This could be done in separate groups, in order to get possible different outcomes that could lead to better specifying the BM. The STOF or the CANVAS Business Models are common BMs.

2. Select the different trends and scenarios

This is done before, but one could also choose to select one scenario during the workshop to create cohesiveness. Using google, or the knowledge of the participants, a scenario is created that will be incorporated in the design. A Trend or scenario could also be presented with a distinction, e.g. cars run on gasoline, and, cars run on electricity.

3. Filling out the matrix of BM and scenarios

Put the BM on the vertical axis on the left, and put the scenarios on top, on the horizontal axis. The participants can give four colours; green, orange, red or grey. In which green, orange and red are the same as a traffic light, respectively, continue, needs some attention, needs serious attention, and grey indicates that there is no influence, or no effect. The whole matrix will be filled out.

4. Improving sections that demand attention

The different red and orange sections will need attention. In this part of the session, different solutions will be thought of, in order to solve the problem that might arise. The company has a general idea on how to solve the problem, and if this scenario will pop up, the company has a plan ready to tackle the problem. To make the BM more robust.

### III Workshop overview

#### Participants

	Startup	Mature
<b>Unfamiliar</b> Size: Company life: Revenue:	<b>4 Little Birds</b> - 4 people - < 6 Months - Unknown	<b>Ongoing - (ICT)</b>
<b>Familiar</b> Size: Company life: Revenue:	<b>Living Lab – Zo-dichtbij</b> - 12 actors - Needs to start - Unknown	<b>Holland Container Innovations</b>

#### Criteria

- Same industry (ICT)
- 4 companies
- 5 people is a lot(3 or 4 is okay)
- People with a university background
- Companies that want to change
- Companies that are on the point of change, and want help/support
- Preferably decision makers in the workshop
- Divers backgrounds in the workshop(Finance, Business, Technology, HR)
- Have a need for strategic insights

#### Preparation

The workshop needs an intake to get the maximum result out of the session itself. The initial intakes will be done by Timber Haaker, the facilitator. During this meeting, normally a couple of weeks before the session itself, different questions posed will give insights in how the workshop will be setup. Which BM Ontology to use, what level of abstraction is necessary, which level of BM knowledge the company already has, etc. Since this intake hasn't commenced yet, the detailed description will be described in a later stage.

**A week before** the company will do the workshop, **the questionnaire will be sent**. The company submits the questionnaire before the workshop starts, in order to validate the reference point. The questionnaire would preferably be done in an **interview style/manner**, in order **to capture more information**. The list below shows all the separate things that need to be prepared, it is a checklist.

- Reserve a room
  - o Enough natural light
  - o Enough space to walk around
  - o Whiteboards to draw
  - o Coffee and Tea reserve @ Sodexo?
  - o Lunch @ Sodexo?
- Tools
  - o Whiteboard markers
  - o Post-its
  - o Pens

- PowerPoint clicker
- Beamer
- Stresstest format A0
- Etc.
- People
  - Facilitator
  - Company
  - Person to film the workshop
  - Carlo will observe
  - Other Observers(Carlos and Wally)
- Prepare scenarios for every company
  - Discussion with the company about what they would like to incorporate
    - This will take 1 hour, also on what the expectations are from both sides
    - We will take them out of their comfort zone, which means it has a big impact.
  - Focus on aspects of scenarios/uncertainties, i.e. do not focus on complete scenarios, how people will live in 2100
  - Split scenario's to walk them through the scenarios(government will be conservative, or pro-active in the field of new taxes)
  - Propose the scenarios and get feedback on the scenarios, to adapt them accordingly.
- Prepare BM(STOF, CANVAS) for the company
- Prepare Business Model Stress Testing with the company

### *During the Workshop*

The detailed time schedule can be found in the next section, in this section the concepts that will be used in the workshop is stated.

The workshop will most likely use the CANVAS or STOF, since this is the specialty of Timber. The decision for which one will be used is made by Timber, during the intake. The scenarios will be determined in collaboration with the company, but Timber and Carlo will propose a set of scenarios. The example in the coming paragraphs will make use of the CANVAS BM.

The 9 different Building Blocks will be explained by an example in an introduction to the whole concept of BMs. Also the goal and the whole process will be explained in order to take away uncertainties. The different elements will be filled in by the guidance of Timber. The whole BM will be iterated a couple of times in the 2 hours that it will last. During this session a break is necessary. During this break new ideas can sink, and can become the foundation for new input and a better BM in the end. The Business Model Stress Testing is a tool that enhances the input, so garbage in is garbage out.

The second session, after the lunch to recharge energy, the Business Model Stress Testing will be used. This session will also start with an introduction, what they can expect, what will come out and what is required of them. An example is given, so the understanding of what is expected will be clear. The different BM blocks will be tested regarding the different scenarios chosen beforehand. This session needs a break too. The session will end with an overview of an heat signature of the BM in relation with different scenarios.

The whole day will be evaluated between the participants and the facilitator. The different statements will be written down in a premade form, with general questions, which is a guide through the evaluation process. In a separate session Timber and Carlo will discuss the day, how it went and what we've learned. Carlo will process all the data and information and sends the main results to all the supervisors.

### Workshop setup

The setup of the room with four or with five people can be found in Figure 19. The participants will sit around a table and look towards the screen, on which the presentation of Timber is presented. The whiteboard, which is also situated near the whiteboard, can be used for the A0 BM forms. The table will be used initially to put on the post-its. The video camera will be focused on the table, and during the introduction on Timber, so a left to right angle is best. The observer, Carlo, will use a laptop, and uses a separate table that is near the main table, and can watch closely what happens during the whole session. The tables will be prepared before the workshop will commence, and the room will be left as it was in first instance after the workshop is done.

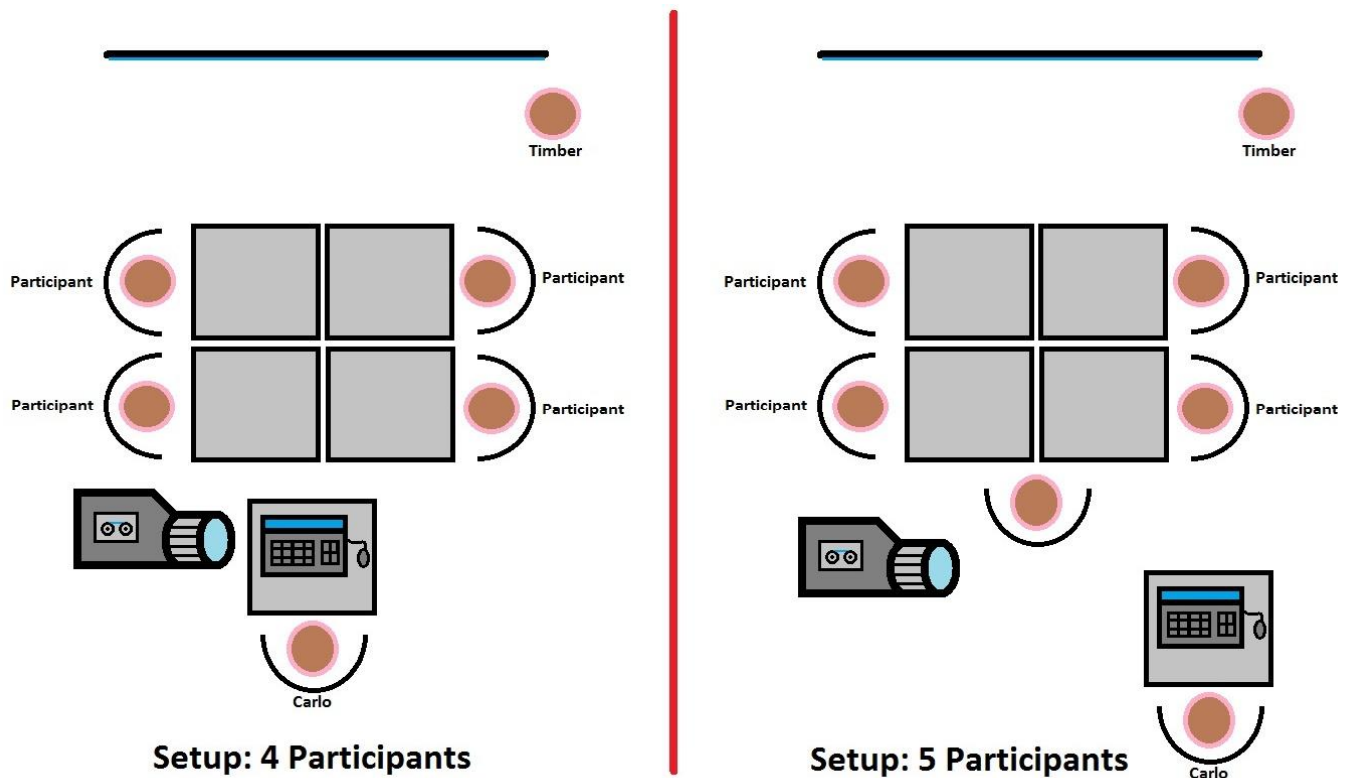


Figure 19 Workshop setup

## Time Overview

The overview of what will happen during the day of the workshop is presented in the timetable below.

Time	Who	Task	Preparation
08:30	Carlo	Get room key	Reserve a room at the service point
08:45	Carlo	Coffee and Tea ready	Get Coffee & Tea @ Sodexo (order before ....)
	Carlo	Tables correct setup	Set tables in a correct setting
	All	Walk-in	Sit down - get acquainted
09:00	All	Start	Be present in time
	Carlo	Start filming	Rent/Get a video camera
	Carlo	Start observing	Paper/Computer to take notes
	Timber	Start introduction	Electrical Socket Presentation tested
09:30	Timber	Start BM workshop	A0 paper ready to use Post-its Pens
10:45	All	Break	Coffee, bathroom, etc.
	Carlo		Coffee ready
	Carlo	Stop filming	
	Timber & Carlo	Discuss progress/ adapt if necessary	
	Carlo	Talk to participants to obtain information on what they think	
11:00	All	BM Continued	Be present in time
	Carlo	Start Filming	
	Timber	Continue BM workshop	
12:15	All	Lunch	Made sandwiches(or get them at Sodexo?)
	Carlo		order sandwiches etc. @ Sodexo?
	Carlo	Stop filming	
	Carlo	Gain insights in participants process	Pen and paper
	Carlo & Timber	Discuss progress	
		Adapt scenarios if necessary	prepared scenarios and extra scenarios
	Carlo	Write the BM on the Business Model Stress Testing sheet	Business Model Stress Testing sheet ready
13:15	All	Start Business Model Stress Testing Workshop	Be present in time
	Timber	Start Business Model Stress Testing Introduction	
	Carlo	Start filming	
13:45	Timber	Start Business Model Stress Testing workshop	
14:45	All	Break	
	Carlo	Coffee and Tea ready	
	Carlo	Stop filming	

Time	Who	Task	Preparation
	Carlo & Timber Carlo	Discuss Progress and adapt if necessary Gain insights in participants' process	
15:00	All Carlo	Business Model Stress Testing continued Start filming	Be present in time
	Timber	Continue Business Model Stress Testing workshop	
16:00	All Carlo  Carlo Timber	Evaluation On the tip of his chair to write down statements  Hand over paper to let them write down statements(structured form) Guide the evaluation and discussion	Energised!  Form printed and available
16:30	All Carlo Carlo Carlo Carlo	End Stop filming Thank you and goodbye "presentation" Take in forms Put the room back in original form	little speech ready Hand out forms
16:45	Carlo & Timber Carlo Carlo	Discuss whole day Submit key back to Service point Process whole day: check everything; add extra insights; put in results from forms; add feedback Timber; Put important data in pre-set file for comparison	Laptop ready



Company	4littleBirds	Holland Container Innovations	Fair Share International BV	Stichting Zo-Dichtbij
Date	14/08/2015	21/08/2015	11/09/2015	13/10/2015
Name	4LittleBirds	Holland Container	Fair Share International BV	Stichting Zo-Dichtbij
Location Headquarters	Amsterdam	Delft	Amsterdam	Delft
Number of Locations	1	1	2	1
Foundation date	01/01/2015	2008	2014	2015
Number of Employees	3	7	4	1
Percentage highly educated employees	100%	90%	100%	100%
Is the Business Family-owned?	No	No	No	No
Legal entity	Other	Private company limited by shares(Ltd.)	Private company limited by shares(Ltd.)	Other
Other:	Not officially started, but it will be a Ltd. or General Partnership			Foundation(Stichting)
Organisational Life Cycle Phase	Start-up phase	Growth Phase	Start-up Phase	Start-up Phase
Who is in the management team?	Founders	Founders, General Director	Founders, General Director, Financial Director, Marketing Director, Operational Director, Human Resource Director	Founders
Is the organisation sustainable?	No	No	No	No
Total Revenue	€ 1.000,00	€ 250.000,00	€ -	€ -
National or International Focus?	Both	Both	Both	National
Percentage internationally focused?	5%	85%	50%	0%

## IV Firm Characteristics

### **Holland Container Innovations(HCI)**

Holland Container Innovations is situated in Delft, and successfully market their idea of a foldable 40ft container. They license a container builder to manufacture the number of containers, the shipping company needs. The manufacturer gets payed by the shipping company, and the manufacturer pays HCI.

*Product: The container can be used as any other 40ft container, that means, to transport goods from A to B, but the Foldable Container can be folded for the way back. The container, when folded, is ¼ of the original container size, which decreases the transport load on many levels, i.e. space, transportation costs, handling costs, etc.*

### **FairShare**

Charities can start a lottery with the service of FairShare. The charities will get 50% of the lottery ticket, the other 50% are prizes for the people. Now only big charities can participate, but they want to incorporate all sort of charities, from the local football- or bingo-club, to Warchild.

### **4LittleBirds**

This Start-up is a product development and design company. Their products should deliver a smile on the faces of people that use, or see the product. Their main product is the Tropical Hangout that they want to lease to companies, festivals or other events. The Tropical Hangout is made out of 3 big Bamboo poles, steel cables and a special construction to mount 3 hammocks that people can lie in. In total, 12 people could sit/lie in this construction.

### **Stichting Zo-Dichtbij**

The Living Lab Zo-Dichtbij, aims to build a matchmaking platform to support civilians in order to live independently for as long as possible. The focus is to match volunteers and care-takers with elderly people that need support. The platform allows access to different companies, e.g. healthcare providers and health insurances, to improve compatibility with different partners and improve the level of support for the civilian.

## V Questionnaires

### V.I General Questionnaire



Deze enquête vult u in naar aanleiding van het participeren in de workshop over Business Modellen.

Allereerst willen wij u bij voorbaat al bedanken voor het invullen van deze enquête. Het doel van deze enquête is om inzicht te krijgen in het gebruik van Business Model Tools. Het doel van de dit onderzoek is om verbeterpunten in kaart te brengen die geïmplementeerd kunnen worden bij het project Envision. Envision zal een ICT-platform worden waar geëxperimenteerd kan worden met diverse Business Model Tools, om de productiviteit te verbeteren.

Door diverse dimensies, zoals Innovativiteit, Markt Dynamiek en Levensfase van de organisatie, in kaart te brengen, kunnen er diverse persona's opgesteld worden. Deze persona's, zoals Beginner of Professioneel gebruiker, kunnen de gebruiker veel helpen in het correct gebruiken van de Business Model Tools.

Naast de persona's die in kaart worden gebracht, zal er ook gekeken worden naar het huidige gebruik door diverse bedrijven. In totaal zullen er 4 bedrijven participeren in dit onderzoek, die elk apart geobserveerd worden. De data die gebruikt wordt in dit onderzoek, zal alleen in conclusie vorm vrijgegeven worden, en persoonlijke informatie zal niet verspreid worden.

De enquête zal rond de 5 minuten van uw tijd kosten, met een diverse variëteit aan vragen.

Mocht u vragen hebben, dan kunt u contact opnemen met Carlo Leopold.

tel. 06-4128 6464  
@ Carlo.Leopold@gmail.com

#### Algemeen

Wat is de datum?

Wat is de bedrijfsnaam?

Waar bevindt het hoofdkantoor zich?

Hoeveel vestigingen heeft uw bedrijf?

Wanneer is uw bedrijf opgericht?

Hoeveel medewerkers heeft uw bedrijf?

Wat is het percentage hoger opgeleid personeel binnen uw organisatie?

U mag dit schatten

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Percentage hoger opgeleid personeel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Is uw organisatie een familie bedrijf?

- Ja  
 Nee

Wordt uw organisatie ook geleid door deze familieleden?

- Ja  
 Nee

Is een van de familieleden directeur binnen uw organisatie?

- Ja  
 Nee

Wat is de rechtsvorm van uw organisatie?

- Eenmanszaak  
 Venootschap onder Firma(VoF)  
 Commanditaire Venootschap(CV)  
 Maatschap  
 Besloten Venootschap(BV)  
 Naamloze Venootschap(NV)  
 Andere

In welke fase van de bedrijfslevenscyclus zit uw bedrijf?

Uitleg:

- De Start-up fase is bezig met het opzetten van het bedrijf, probeert een plekje in de markt te veroveren en denkt na over hoe de organisatie op een structurele manier inkomsten kan genereren. De visie heeft een kader van ongeveer 1 jaar.

- De Groei fase heeft structurele inkomsten, en is vooral gefocust op het vergroten van het marktaandeel en denkt na op een termijn van 5 jaar.

- Volwassen bedrijven zijn vooral gefocust op de efficiënte van de interne processen. Dit soort bedrijven denken vaak na op een termijn van 10 jaar.

- Start-up fase  
 Groei fase  
 Volwassen

Wie zitten in het management team?

Voorbeeld 1: Directeur, Financieel Directeur, Hoofd Personeelszaken en Productiemanager

Voorbeeld 2: Oprichters en Investeerder

Gelijkssoortige functies, Hoofd personeelszaken en Personeelszaken Directeur, kunt u als gelijk beschouwen

- Oprichters
- Algemeen directeur
- Financieel directeur
- Verkoop directeur
- Marketing directeur
- Operationeel directeur
- Personeelszaken directeur
- Inkoop directeur
- Juridisch directeur
- ICT-directeur
- R&D Directeur
- Investeerder
- Andere

Is uw bedrijf zelfvoorzienend?

Dus niet afhankelijk van externe financiële middelen, zoals leningen, subsidies of investeringen

- Ja
- Nee

Wat is de totaal omzet van uw bedrijf?

Is uw organisatie gefocust op zaken doen op nationaal vlak, internationaal vlak, of in beide categorieën?

- Nationaal
- Internationaal
- Beide

Hoeveel procent is Internationaal gericht?

## V.II Questionnaire Company before workshop



Enquête Business Modellen  
- vooraf -  
Persoonlijk

Deze enquête vult u in naar aanleiding van het participeren in de workshop over Business Modellen.

Allereerst willen wij u bij voorbaat bedanken voor het invullen van deze enquête. Het doel van deze enquête is om inzicht te krijgen in het gebruik van Business Model Tools. Het doel van dit onderzoek is om verbeterpunten in kaart te brengen die geïmplementeerd kunnen worden bij het project Envision. Envision zal een ICT-platform worden waar geëxperimenteerd kan worden met diverse Business Model Tools, om de productiviteit van het MKB te verbeteren.

Door diverse dimensies, zoals Innovativiteit, Markt Dynamiek en Levensfase van de organisatie, in kaart te brengen, kunnen er diverse persona's opgesteld worden. Deze persona's, zoals Beginner of Professioneel gebruiker, kunnen gebruikers veel helpen in het correct gebruiken van de Business Model Tools.

Naast de persona's die in kaart worden gebracht, zal er ook gekeken worden naar het huidige gebruik door diverse bedrijven. In totaal zullen er 4 bedrijven participeren in dit onderzoek, die elk apart geobserveerd worden. De data die gebruikt wordt in dit onderzoek, zal alleen in conclusie vorm vrijgegeven worden, en persoonlijke informatie zal niet verspreid worden.

De enquête heeft 48 vragen en zal rond de 15 - 20 minuten duren, met een diverse variëteit aan vragen.

Mocht u vragen hebben, dan kunt u contact opnemen met Carlo Leopold.

tel. 06-4128 6464  
@ Carlo.Leopold@gmail.com

## Persoonlijk

1. Wat is uw naam?

2. Wat is de datum?

3. Wat is uw geboortedatum?

4. Wat is uw hoogst genoten opleiding?

5. Wat is uw functie binnen de organisatie?

6. Bent u eigenaar van de organisatie?

- Ja  
 Nee

7. Wat is de bedrijfscultuur?

*Denk aan Ondernemend, Markt gericht, Lerend ingesteld, etc.*

## Ondernemerschap

Bent u geen ondernemer, dan kunt u deze vragen overslaan.

8. Wat is uw motivatie om ondernemer te zijn?

9. Accepteert u als ondernemer risico's voor de organisatie?

*Denk aan: financieel, samenwerkingsverbanden, patenten, etc.*

- 1) Ja, zonder risico's geen groei  
 2) Ja, mits faillissement uit blijft  
 3) Ja, mits de risico's op korte termijn verholpen kunnen worden  
 4) Ja, zolang het bedrijf er niet slechter van wordt  
 5) Nee, ik accepteer geen enkel risico

10. Wordt er binnen uw organisatie gewerkt aan strategische plannen?

- Ja (zie vervolgvraag)  
 Nee

10b. Vanuit wie komen deze activiteiten?

- Mijzelf  
 Andere eigenaren  
 Medewerkers  
 Management Team

11. Binnen de organisatie is iedereen gedreven om elk goed idee te verwezenlijken.

- Ja  
 Nee

12. Onze organisatie kan snel en goed nieuwe mogelijkheden en ideeën identificeren.

- Ja  
 Nee

## Business Modellen

In dit onderdeel wordt u kennis over business modellen onderzocht. Mocht u geen ervaring hebben, ga dan naar de eerstvolgende vraag.

*Business Modellen, zoals bedoeld in dit onderzoek, zijn modellen die op een systematische manier uw organisatie, op een abstract niveau, in kaart brengen. Modellen waaraan u kunt denken is het CANVAS Business Model, het STOF Business Model of e3-value Business Model. Het invullen van de vragen; Wat? Hoe? Waarom? zijn onderdelen die door het gehele Business Model heen terugkomen, maar zijn geen abstracte weergave van uw bedrijf.*

Om een idee te krijgen bij dit soort modellen, ziet u hieronder een gedeeltelijk ingevuld CANVAS Business Model.

## Business Model Hoger Onderwijs



13. Bent u bekend met Business Modellen?

- Ja  
 Nee, sla dit onderdeel over en ga naar "Workshop verwachtingen en invulling"

14. Maakt u ook gebruik van Business Modellen?

- Ja  
 Nee

14b. Hoe vaak maakt u gebruik van Business Modellen?  
(Dagelijks, Wekelijks, Maandelijks, etc.)

15. Hoe maakt u gebruik van Business Modellen?

16. Waarom maakt u gebruik van Business modellen?

17. Maakt u gebruik van Business Model hulpmiddelen?

*Zoals Quickscan, Canvanizer, etc.*

- Ja, zie vraag hiernaast  
 Nee

17b. Welke hulpmiddelen zijn dit?

18. Heeft u wel eens met Business Modellen geëxperimenteerd? *Nieuwe soort aanpak, ander verdienmodel, etc.*

- Ja, zie vraag hiernaast  
 Nee

18b. Waarom?

19. Het Business Model van uw organisatie is géén kopie van andere bedrijven?

- Ja, ons Business Model is origineel  
 Nee, ons Business Model is vergelijkbaar met die van andere bedrijven

**Workshop verwachtingen en invulling**

**Wat gaat er gebeuren?**

De workshop bevat twee onderdelen die met elkaar verbonden zijn. Allereerst zal het Business Model ontworpen worden. Dit Business Model zal de input zijn voor de Business Model Stress Test, het tweede onderdeel van de workshop.

**Hoe ontwerp ik mijn Business Model?**

Het ontwerpen van uw Business Model kan aan de hand van een Business Model Ontologie, dit is een standaard model, zoals het Business Model CANVAS. U ontwerpt een abstracte weergave van uw Business, zoals een ontwerp van een huis. Hoe het huis daadwerkelijk gebruikt gaat worden, bijvoorbeeld waar de eettafel in een huis komt, staat niet volledig vast, maar de grote lijnen staan vast.

**Wat is de Business Model Stress Test?**

Het Stress Testen van uw Business Model zal gebeuren in combinatie met onzekerheden, of scenario's die zich voor kunnen doen. Door het Business Model uit te zetten tegen deze scenario's en onzekerheden, wordt er per onderdeel gekeken of een onderdeel hier veel invloed van ondervindt. Er wordt een heat-map gemaakt, waardoor er inzicht verkregen wordt in de zwakke onderdelen van het Business Model. U ziet een abstracte weergave van een ingevulde Stress Test in de afbeelding hieronder. Een negatieve invloed op het onderdeel is weergegeven als rood en groen als er geen invloed is. Grijs laat zien dat er geen relevantie is tussen het Business Model Onderdeel en het scenario. Rood betekend veel invloed, en mogelijk zelfs een "show stopper", wat directe aandacht nodig heeft.

De volgende vragen zullen gaan over uw verwachting van de workshop en de diverse attributen die gebruikt kunnen worden tijdens de workshop.

	Scenario 1	Scenario 2	Scenario 3
Business Model onderdeel	Yellow	Green	Red
Business Model onderdeel	Green	Yellow	Green
Business Model onderdeel	Green	Yellow	Grey
Business Model onderdeel	Red	Yellow	Yellow
Business Model onderdeel	Grey	Yellow	Red
Business Model onderdeel	Yellow	Yellow	Green
Business Model onderdeel	Red	Yellow	Red

20. Wilt u uw huidige Business Model, of een nieuw Business Model ontwerpen in de workshop?

- Huidig
- Nieuw

21. Wat verwacht u van het ontwerpen van uw Business Model tijdens de workshop?

22. Wat verwacht u als uitkomst van het Business Model ontwerp?

23. Wat zijn onzekerheden, trends of scenario's waarmee u, uw Business Model wilt testen?

Onzekerheden, trends en scenario's die invloed hebben op uw Business, maar die buiten de controle van het Living Lab liggen.

Voorbeeld onzekerheid: Subsidies verkrijgen

Voorbeeld trend: Vergrijzing van de maatschappij

Voorbeeld scenario: Reizen met Openbaar Vervoer wordt 2 keer zo duur

Meerdere antwoorden mogelijk

24. Wat verwacht u van het invullen van de Business Model Stress Test tijdens de workshop?

Moeilijkheden, interne problemen die naar boven komen, verschil in meningen, ruzie, verwarring

25. Wat ziet u graag als resultaat na het gebruik van de Business Model Stress Test?

26. Waar hoopt u aan het einde van de workshop-dag mee naar huis te gaan?

**In welke Industrie bevindt de organisatie zich?**

27. In welke industrie is uw organisatie actief, en hoe lang?  
*Meerdere antwoorden zijn mogelijk*

28. Bent u marktleider in één of meer industrieën?

- Ja, zie vervolgvraag  
 Nee

28b. In welke industrie, of industrieën?

29. Vindt u dat uw organisatie andere industrieën moeten betreden?

- Ja, zie vervolgvraag  
 Nee

29b. Zo ja, welke industrie of industrieën?

**Welke Producten worden er gemaakt en verkocht?**

30. Welke producten biedt de organisatie aan?  
*Meerdere antwoorden zijn mogelijk*

31. Was uw organisatie als eerste in de markt met deze producten?

- Ja  
 Nee  
 Andere

32. Moeten er nieuwe producten ontwikkeld worden?

- Ja, zie vervolgvraag  
 Nee

32b. Zo ja, wat voor een soort producten?

33. Wat zijn dit voor een soort producten?

- Fysieke producten  
 Niet-fysieke producten  
 Services  
 Andere

34. Wat is het technologie niveau van de producten?

*Laag: Lage investeringskosten, eenvoudig te fabriceren door weinig handelingen, 1 op 1 klant contact, maakt standaard oplossing met bekende mogelijkheden op dat gebied*

*Hoog: Hoge investeringskosten, zeer lastig te fabriceren door veel handelingen, veel verschillende betrokkenen, state of the art oplossing met nieuwste mogelijkheden op dat gebied.*

	1 Laag	2	3 Gemiddeld	4	5 Hoog
Technologie niveau	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Investeringskosten	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aantal handelingen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aantal betrokken personen in geheel verkoop proces	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Complexiteit van de oplossing die het product biedt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



**Hoe belangrijk is Innovatie?**

35. Wat is het percentage van de totale omzet, die in het bedrijf geïnvesteerd wordt?

36. Hoeveel procent van de investeringen die gedaan worden, gaan naar ontwikkeling(R&D) van producten of diensten?

37. Wat verstaat u onder Innovativiteit?

38. Hoeveel innovaties worden er gemiddeld per jaar doorgevoerd?

39. Hoe afhankelijk zijn deze innovaties van diverse factoren?

*Zoals: Concurrentie, nieuwe uitvindingen, samenwerkingsverbanden, eigen creativiteit, onderzoek, etc.*

	1	2	3	4	5	6	7
Interne factoren	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Externe Factoren	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

40. Hoe innovatief is uw organisatie op een schaal van 1 tot 10?

	1	2	3	4	5	6	7	8	9	10
Innovativiteit	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

41. Op welke plek, in onderstaande lijst, staat uw organisatie volgens u?

- 1) Onze organisatie is één van de eerste die innovaties introduceert
- 2) Onze organisatie zoekt vaak eerst advies voordat de innovaties geïntroduceerd worden
- 3) Onze organisatie wacht eerst even af voordat de innovaties geïntroduceerd worden
- 4) Onze organisatie introduceert alleen maar innovaties vanwege de druk uit het netwerk
- 5) Onze organisatie is vaak de laatste die innovaties introduceert
- 6) Onze organisatie introduceert geen innovaties, die zijn er niet

**Staat de organisatie Open voor nieuwe ideeën?**

42. Hoe gaat de organisatie met nieuwe ideeën van medewerkers om?

	1 Helemaal niet mee eens	2 Niet mee eens	3 Neutraal	4 Mee eens	5 Helemaal mee eens
De Manager stimuleert medewerkers om "Outside the box" te denken	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Onze organisatie is gefocust op constante innovatie	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Originele ideeën worden zeer gewaardeerd	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Nieuwe ideeën worden altijd op de plank geschoven. Eerst focussen op de dagelijkse problemen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ideeën die gebruikt worden zijn er om huidige problemen op te lossen, en niet om nieuwe producten te ontwikkelen	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

**Is er in de markt veel Technologie Verandering?**

43. Hoeveel effect heeft technologie verandering op de organisatie?

	1 Helemaal niet mee eens	2 Niet mee eens	3 Neutraal	4 Mee eens	5 Helemaal mee eens
De technologieën in deze markten veranderen zeer frequent	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
De afgelopen tijd zijn er zeer veel High-Tech producten op de markt verschenen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De technologie ontwikkeling heeft zich zeer sterk ontwikkeld de laatste tijd	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Er wordt zeer veel onderzoek gedaan naar nieuwe technologie in deze markt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De technologie veranderingen zijn van essentieel belang voor de organisatie	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

### Hoe Competitief is de markt?

44. Wat is het effect van competitie op de organisatie?

	1 Helemaal niet mee eens	2 Niet mee eens	3 Neutraal	4 Mee eens	5 Helemaal mee eens
Er wordt sterk op prijs geconcentreerd	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De aangeboden producten in de markt zijn vrijwel identiek	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Concurrenten reageren direct op elke verandering die onze organisatie doorvoert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Onze organisatie reageert op elke verandering die concurrenten doorvoeren	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Onze organisatie komt altijd met nieuwe producten op de markt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Concurrenten komen altijd met nieuwe producten op de markt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kwaliteit gaat boven kostenbesparing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De marge is zo laag, dat nieuwe producten ontwikkelen niet meer gaat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Is er Turbulentie in de Markt?

45. Hoe turbulent is de markt waarin de organisatie zich bevindt?

	1 Helemaal niet mee eens	2 Niet mee eens	3 Neutraal	4 Mee eens	5 Helemaal mee eens
De wensen van de klant veranderen snel en drastisch	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Onze klanten zoeken continue naar de nieuwste producten op de markt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wij bouwen een hechte relatie op met de klant door de tijd heen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

46. Hoe turbulent vindt u de markt?

*Een turbulente markt kunt u interpreteren als een onstabiele omgeving, waarin klanten snel veranderen van wensen en mening, waar marketing uitermate belangrijk is, waar de klant geen voorkeur heeft voor bedrijf of merk, maar alleen naar de voordelen die er op dat moment, vanuit zijn perspectief, zijn.*

	1 Niet turbulent	2 Minder dan Gemiddeld	3 Gemiddelde turbulentie	4 Meer dan gemiddeld	5 Zeer turbulent
Markt turbulentie	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## V.III Questionnaire Living Lab before workshop



Enquête Business Modellen  
- vooraf -  
Persoonlijk

### Staat het Living Lab Open voor nieuwe initiatieven of ideeën?

30. Hoe gaat het Living Lab om met nieuwe initiatieven of ideeën van deelnemers?

	1 Helemaal niet mee eens	2 Niet mee eens	3 Neutraal	4 Mee eens	5 Helemaal mee eens
De kar-trekker stimuleert deelnemers om "Outside the box" te denken	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Ons Living Lab is gefocust op constante innovatie	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Originele ideeën worden zeer gewaardeerd	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Nieuwe ideeën worden op de plank geschoven. Eerst focussen op de dagelijkse problemen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ideeën die gebruikt worden zijn er om huidige problemen op te lossen, en niet om nieuwe producten te ontwikkelen	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

### Is er in de markt veel Technologie Verandering?

31. Hoeveel effect heeft technologie verandering op het Living Lab?

	1 Helemaal niet mee eens	2 Niet mee eens	3 Neutraal	4 Mee eens	5 Helemaal mee eens
De technologieën in deze markten veranderen zeer frequent	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
De afgelopen tijd zijn er zeer veel High-Tech producten op de markt verschenen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De technologie ontwikkeling heeft zich zeer sterk ontwikkeld de laatste tijd	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Er wordt zeer veel onderzoek gedaan naar nieuwe technologie in deze markt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De technologie veranderingen zijn van essentieel belang voor het Living Lab	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

Deze enquête vult u in naar aanleiding van het participeren in de workshop over business modellen.

Allereerst willen wij u bij voorbaat danken voor het invullen van deze enquête. Het doel van deze enquête is om inzicht te krijgen in het gebruik van, en het niveau van de diverse leden omtrent Business Model Tools.

Naast het doel om een Business Model voor het Living Lab te ontwerpen is deze enquête ook bedoeld ter ondersteuning van het project Envision. Het doel van dit onderzoek is om verbeterpunten in kaart te brengen die geïmplementeerd kunnen worden bij het project Envision. Envision zal een ICT-platform worden waar geëxperimenteerd kan worden met diverse Business Model Tools, om de productiviteit van het MKB te verbeteren.

In het Envision project zullen er 3 bedrijven participeren en het Zo-Dichtbij Living Lab, die elk apart geobserveerd worden. De data die gebruikt wordt in dit onderzoek, zal alleen als conclusie vrijgegeven worden, en persoonlijke informatie zal niet verspreid worden. Er zal zorgvuldig worden omgegaan met de verkregen informatie.

De enquête heeft 31 vragen en zal rond de 15 - 25 minuten duren, met een diverse variëteit aan vragen.

Mocht u vragen hebben, dan kunt u contact opnemen met Carlo Leopold.

tel. 06-4128 6464

@ Carlo.Leopold@gmail.com

Begin tijdstip

### Persoonlijk

1. Wat is uw naam?

2. Wat is de datum?

3. In welke leeftijdscategorie valt u?

	0 - 20	21 - 30	31 - 40	41 - 50	51 - 60	60+
Leeftijdscategorie	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Wat is uw hoogst genoten opleiding?

5. Wat is uw rol binnen het Living Lab(Zo-Dichtbij)?

6. Wat is de algemene cultuur binnen het Living Lab?

*Denk aan Ondernemend, Markt gericht, Lerend ingesteld, etc.*

### Business Modellen

In dit onderdeel wordt uw kennis over business modellen onderzocht. Mocht u geen ervaring hebben, ga dan naar de eerstvolgende vraag, vraag 7.

*Een Business Model is een conceptueel middel, om de business logica bloot te leggen, door gebruik te maken van objecten en concepten in relatie met het doel van een specifiek bedrijf. Business Modellen waaraan u kunt denken zijn het CANVAS Business Model, het STOF Business Model of e3-value Business Model. Het invullen van de vragen; Wat? Hoe? Waarom? zijn onderdelen die door het gehele Business Model heen terugkomen, maar zijn geen abstracte weergave van uw bedrijf.*

*Om een idee te krijgen bij dit soort modellen, ziet u hieronder een gedeeltelijk ingevuld CANVAS Business Model.*

### Business Model Hoger Onderwijs



7. Bent u bekend met Business Modellen?

- Ja  
 Nee, sla dit onderdeel over en ga naar "Workshop verwachtingen en invulling"

8. Maakt u ook gebruik van Business Modellen?

- Ja  
 Nee

8b. Hoe vaak maakt u gebruik van Business Modellen? (Dagelijks, Wekelijks, Maandelijks, etc.)

9. Hoe maakt u gebruik van Business Modellen?

10. Waarom maakt u gebruik van Business modellen?

11. Maakt u gebruik van Business Model hulpmiddelen?

*Zoals Quickscan, Canvanizer, etc.*

- Ja, zie vraag hiernaast  
 Nee

11b. Welke hulpmiddelen zijn dit?

12. Heeft u wel eens met Business Modellen geëxperimenteerd? *Nieuwe soort aanpak, ander verdienmodel, etc.*

- Ja, zie vraag hiernaast  
 Nee

12b. Waarom?

### Workshop verwachtingen en invulling

#### Wat gaat er gebeuren?

De workshop bevat twee onderdelen die met elkaar verbonden zijn. Allereerst zal het Business Model ontworpen worden. Dit Business Model zal de input zijn voor de Business Model Stress Test, het tweede onderdeel van de workshop.

#### Hoe ontwerp ik mijn Business Model?

Het ontwerpen van uw Business Model kan aan de hand van een Business Model Ontologie, dit is een standaard model, zoals het Business Model CANVAS. U ontwerpt een abstracte weergave van uw Business, zoals een ontwerp van een huis. Hoe het huis daadwerkelijk gebruikt gaat worden, bijvoorbeeld waar de eettafel in een huis komt, staat niet volledig vast, maar de grote lijnen staan vast.

#### Wat is de Business Model Stress Test?

Het Stress Testen van uw Business Model zal gebeuren in combinatie met onzekerheden, of scenario's die zich voor kunnen doen. Door het Business Model uit te zetten tegen deze scenario's en onzekerheden, wordt er per onderdeel gekeken of een onderdeel hier veel invloed van ondervindt. Er wordt een heat-map gemaakt, waardoor er inzicht verkregen wordt in de zwakke onderdelen van het Business Model. U ziet een abstracte weergave van een ingevulde Stress Test in de afbeelding hieronder. Een negatieve invloed op het onderdeel is weergegeven als rood en groen als er geen of positieve invloed is. Grijs laat zien dat er geen relevantie is tussen het Business Model Onderdeel en het scenario. Rood betekend veel invloed, en mogelijk zelfs een "show stopper", wat directe aandacht nodig heeft.

De volgende vragen zullen gaan over uw verwachting van de workshop en de diverse attributen die gebruikt kunnen worden tijdens de workshop.

	Scenario 1	Scenario 2	Scenario 3
Business Model onderdeel	Yellow	Green	Red
Business Model onderdeel	Yellow	Green	Red
Business Model onderdeel	Yellow	Green	Red
Business Model onderdeel	Yellow	Green	Red
Business Model onderdeel	Yellow	Green	Red
Business Model onderdeel	Yellow	Green	Red
Business Model onderdeel	Yellow	Green	Red
Business Model onderdeel	Yellow	Green	Red



13. Wat verwacht u van het ontwerpen van uw Business Model tijdens de Workshop?

14. Wat verwacht u als uitkomst van het ontwerpen van het Business Model?

15. Wat zijn onzekerheden, trends of scenario's waarmee u, uw Business Model wilt testen?

Onzekerheden, trends en scenario's die invloed hebben op uw Business, maar die buiten de controle van het Living Lab liggen.

Voorbeeld onzekerheid: Subsidies verkrijgen

Voorbeeld trend: Vergrijzing van de maatschappij

Voorbeeld scenario: De overheid stelt in dat mensen die 70 jaar zijn, verplicht naar een zorginstelling moeten

Meerdere antwoorden zijn mogelijk

16. Wat verwacht u van het invullen van de Business Model Stress Test tijdens de workshop?

Moelijkheden, interne problemen die naar boven komen, verschil in meningen, ruzie, verwarring

17. Wat ziet u graag als resultaat na het gebruik van de Business Model Stress Test?

18. Waar hoopt u aan het einde van de workshop-dag mee weg te lopen?

### Wat biedt het Living Lab aan?

19. Wat biedt het Living Lab aan?

Meerdere antwoorden zijn mogelijk

20. Was het Living Lab de eerste die dit aanbiedt in deze sector?

Ja

Nee

Andere

21. Moeten er nieuwe services, diensten of producten ontwikkeld worden?

Ja, zie vervolgvraag

Nee

21b. Zo ja, wat moet er dan precies ontwikkeld worden?

22. Wat is het technologie niveau waar het Living Lab gebruik van maakt?

Laag: Lage investeringskosten, eenvoudig te realiseren door weinig handelingen, 1 op 1 klant contact, maakt standaard oplossing met bekende mogelijkheden op dat gebied

Hoog: Hoge investeringskosten, zeer lastig te realiseren door veel handelingen, veel verschillende betrokkenen, state of the art oplossing met nieuwste mogelijkheden op dat gebied.

	1 Laag	2	3 Gemiddeld	4	5 Hoog
Technologie niveau	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Investeringskosten	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aantal handelingen voor realisatie	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aantal betrokken personen in geheel ontwikkel proces	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Complexiteit van de oplossing die het Living Lab biedt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Eind tijdstip*

Dank voor het invullen van de enquête.

Graag uw document opslaan als "Enquete BM Living Lab - Persoonlijk - uw voornaam en achternaam"  
Voorbeeld: Enquete BM Living Lab - Persoonlijk - Carlo Leopold

Als dit document is opgeslagen, graag e-mailen naar [Carlo.Leopold@gmail.com](mailto:Carlo.Leopold@gmail.com).

Hartelijk dank voor uw tijd en input.

## V.IV Questionnaire Company after workshop



Enquête Business Modellen  
- achteraf -  
Persoonlijk

Deze enquête vult u in naar aanleiding van het participeren in de workshop over business modellen.

U heeft de workshop gedaan, waarschijnlijk zijn er verschillende onderdelen veranderd ten opzicht van voor de workshop. Dit verschil probeer ik in kaart te brengen door deze enquête naast de eerste enquête en de observatie van de workshop te leggen. Uw inzichten zijn daarom uitermate waardevol om een conclusie te kunnen trekken over de business model tools.

Ik wil u nogmaals bedanken voor het invullen van de eerste enquête en uw tijd en energie voor het participeren in de workshop. Mocht u nog tips, aanvullingen of verbeter punten willen aandragen naar aanleiding van een onderdeel van het onderzoek, dan kunt u dit aan het einde van dit document doen.

De data die gebruikt wordt in dit onderzoek, zal alleen als conclusie vrijgegeven worden, en persoonlijke informatie zal niet verspreid worden. Er zal zorgvuldig worden omgegaan met de verkregen informatie.

De enquête heeft 31 vragen en zal rond de 15 - 25 minuten duren, met een diverse variëteit aan vragen.

Mocht u vragen hebben, dan kunt u contact opnemen met Carlo Leopold.

tel. 06-4128 6464  
@ [Carlo.Leopold@gmail.com](mailto:Carlo.Leopold@gmail.com)

Begin tijdstip

**Persoonlijk**

1. Wat is uw naam?

2. Wat is de datum?

3. Wat is het percentage dat u aanwezig bent geweest bij de workshop?

Volledig aanwezig betekend 100%, alleen de ochtend sessie 50%, een half uur te laat aanwezig is = 85%

	0	10	20	30	40	50	60	70	80	90	100
Percentage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Terugblik Algemeen**

4. Wat was uw algemene ervaring van de workshop?

5. Heeft de workshop aan uw verwachtingen voldaan?

6. Hoe heeft u zich voorbereid op de workshop?

7. Wat vond u van de tijdsduur van de gehele workshop?

8. Zijn er onderdelen die beter gekund hadden?

9. Als u de volgende keer weer eenzelfde workshop gaat doen, hoe zou u zich voorbereiden?

10. Als u de volgende keer weer eenzelfde workshop doet, wat zou u anders doen?



### Terugblik business model ontwerpen

11. Wat vond u van het ontwerpen van het business model?

12. Hoe heeft u het proces, van het ontwerpen van het business model, ervaren?

13. Zijn er inhoudelijke punten van het ontwerpen, die beter gekund hadden tijdens of voor de workshop?

14. Als er een online platform zou zijn voor het ontwerpen van het business model van uw organisatie, wat zijn redenen om het wel of niet te gebruiken?

15. Als u kijkt naar de workshop, wat moet er op het online platform aanwezig zijn voor het ontwerpen van een business model?

### Terugblik business model stress test

16. Wat vond u van het business model stress testen?

17. Hoe heeft u het proces, van het stress testen van het business model, ervaren?

18. Was het lastig om scenario's, onzekerheden of trends te bepalen?

19. Zijn er inhoudelijke punten van het stress testen, die beter gekund hadden tijdens of voor de workshop?

20. Als er een online platform zou zijn voor het stress testen van het business model van uw organisatie, wat zijn redenen om het wel of niet te gebruiken?

21. Als u kijkt naar de workshop, wat moet er op het online platform aanwezig zijn voor het stress testen van een business model?

### Business Model Robuustheid

In welke mate kan uw Business Model gebruikt blijven worden zoals u die heeft ontworpen in de workshop, als de volgende scenario's zich voor doen:

22. Een concurrent, of andere partij, brengt een verbeterde(2.1) versie van uw product, dienst of service op de markt.

*Denk aan Hyves(1.1) en Facebook(2.1)*

23. Een concurrent, of andere partij, springt in de markt, omdat deze ziet dat er een groot gedeelte van de markt minder hoge eisen stelt aan het product, dienst of service en merkt dat de markt niet zoveel voor het huidige product wil betalen.

*Denk aan Apple en Android telefoons, Mitsubishi en Ferrari auto's*

24. De markt is nog niet bekend met het product, dienst of service van een concurrent, die op lange termijn uw product uit de markt duwt door te concurreren op prijs of kwaliteit.

*Denk aan de Google Car en de huidige auto. De Google Car rijdt zelfstandig van A naar B(zonder besturing van een mens).*

### De toekomst

25. Heeft de business model stress test tot nieuwe inzichten geleid?

- Ja  
 Nee

26. Als de business model stress test tot nieuwe inzichten heeft geleid, welke inzichten?

27. Bent u beter voorbereid op de toekomst door de business model stress test te gebruiken?

- Ja  
 Nee

28. Als u beter voorbereid bent op de toekomst door de business model stress test, waarom bent u beter voorbereid?

29. In hoeverre heeft de business model stress test bijgedragen aan:

*Meerdere vakjes kunnen aangekruist worden*

- Nieuwe perspectieven  
 Onbeantwoorde vragen beantwoord  
 Gestructureerde discussies  
 Beter inzicht in het functioneren van uw organisatie  
 Beter toekomst beeld  
 Heldere stappen die uitgevoerd moeten worden

30. In welke mate heeft de business model stress test de volgende onderdelen beïnvloed?

	1 Weinig invloed	2	3	4	5 Veel invloed
Besluitvorming	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Contact met de markt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inspelen op de markt vraag	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aanpassen aan wat de markt wil	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Het benaderen van de markt	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Proactieve houding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

31. In welke fase van de organisatie levens cyclus is de business model stress test het meest bruikbaar?

- Startup
- Groei
- Volwassen
- Neergang

#### **Afsluiting**

Heeft u nog aanvullingen, verbeter punten, tips of andere punten waar de onderzoeker van op de hoogte gebracht moet worden?

#### ***Eind tijdstip***

Dank voor het invullen van de enquête en het deelnemen aan de workshop over business modellen.

Mocht u willen weten wat er uit één van de onderzoeken is gekomen, dan kunt u Carlo Leopold mailen voor een update of een conclusie.

Graag uw document opslaan als "Enquete BM - Persoonlijk 2 - uw voornaam en achternaam"

Voorbeeld: Enquete BM - Persoonlijk 2 - Carlo Leopold

Als dit document is opgeslagen, graag e-mailen naar Carlo.Leopold@gmail.com.

Hartelijk dank voor uw tijd en input.

## V.V Questionnaire Living Lab after workshop



Enquête Business Modellen  
- achteraf -  
Persoonlijk

Deze enquête vult u in naar aanleiding van het participeren in de workshop over business modellen.

U heeft de workshop gedaan, waarschijnlijk zijn er verschillende onderdelen veranderd ten opzicht van voor de workshop. Dit verschil probeer ik in kaart te brengen door deze enquête naast de eerste enquête en de observatie van de workshop te leggen. Uw inzichten zijn daarom uitermate waardevol om een conclusie te kunnen trekken over de business model tools.

Ik wil u nogmaals bedanken voor het invullen van de eerste enquête en uw tijd en energie voor het participeren in de workshop. Mocht u nog tips, aanvullingen of verbeter punten willen aandragen naar aanleiding van een onderdeel van het onderzoek, dan kunt u dit aan het einde van dit document doen.

De data die gebruikt wordt in dit onderzoek, zal alleen als conclusie vrijgegeven worden, en persoonlijke informatie zal niet verspreid worden. Er zal zorgvuldig worden omgegaan met de verkregen informatie.

De enquête heeft 31 vragen en zal rond de 15 - 25 minuten duren, met een diverse variëteit aan vragen.

Mocht u vragen hebben, dan kunt u contact opnemen met Carlo Leopold.

tel. 06-4128 6464  
@ Carlo.Leopold@gmail.com

Begin tijdstip

### Persoonlijk

1. Wat is uw naam?

2. Wat is de datum?

3. Wat is het percentage dat u aanwezig bent geweest bij de workshop?

Volledig aanwezig betekend 100%, alleen de ochtend sessie 50%, een half uur te laat aanwezig is ≈ 85%

	0	10	20	30	40	50	60	70	80	90	100
Percentage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Terugblik Algemeen

4. Wat was uw algemene ervaring van de workshop?

5. Heeft de workshop aan uw verwachtingen voldaan?

6. Hoe heeft u zich voorbereid op de workshop?

7. Wat vond u van de tijdsduur van de gehele workshop?

8. Zijn er onderdelen die beter gekund hadden?

9. Als u de volgende keer weer eenzelfde workshop gaat doen, hoe zou u zich voorbereiden?

10. Als u de volgende keer weer eenzelfde workshop doet, wat zou u anders doen?

### Terugblik business model ontwerpen

11. Wat vond u van het ontwerpen van het business model?

12. Hoe heeft u het proces, van het ontwerpen van het business model, ervaren?

13. Zijn er inhoudelijke punten van het ontwerpen, die beter gekund hadden tijdens of voor de workshop?

14. Als er een online platform zou zijn voor het ontwerpen van het Living Lab business model, wat zijn redenen om het wel of niet te gebruiken?

15. Als u kijkt naar de workshop, wat moet er op het online platform aanwezig zijn voor het ontwerpen van een business model?

### Terugblik business model stress test

16. Wat vond u van het business model stress testen?

17. Hoe heeft u het proces, van het stress testen van het business model, ervaren?

18. Was het lastig om scenario's, onzekerheden of trends te bepalen?

19. Zijn er inhoudelijke punten van het stress testen, die beter gekund hadden tijdens of voor de workshop?

20. Als er een online platform zou zijn voor het stress testen van het Living Lab business model, wat zijn redenen om het wel of niet te gebruiken?

21. Als u kijkt naar de workshop, wat moet er op het online platform aanwezig zijn voor het stress testen van een business model?

### Business Model Robuustheid

In welke mate kan uw Business Model gebruikt blijven worden zoals u die heeft ontworpen in de workshop, als de volgende scenario's zich voor doen:

22. Een concurrent, of andere partij, brengt een verbeterde(2.1) versie van uw product, dienst of service op de markt.

*Denk aan Hyves(1.1) en Facebook(2.1)*

23. Een concurrent, of andere partij, springt in de markt, omdat deze ziet dat er een groot gedeelte van de markt minder hoge eisen stelt aan het product, dienst of service en merkt dat de markt niet zoveel voor het huidige product wil betalen.

*Denk aan Apple en Android telefoons, Mitsubishi en Ferrari auto's*

24. De markt is nog niet bekend met het product, dienst of service van een concurrent, die op lange termijn uw product uit de markt duwt door te concurreren op prijs of kwaliteit.

*Denk aan de Google Car en de huidige auto. De Google Car rijdt zelfstandig van A naar B(zonder besturing van een mens).*

## De toekomst

25. Heeft de business model stress test tot nieuwe inzichten geleid?

- Ja  
 Nee

26. Als de business model stress test tot nieuwe inzichten heeft geleid, welke?

27. Bent u beter voorbereid op de toekomst door de business model stress test te gebruiken?

- Ja  
 Nee

28. Als u beter voorbereid bent op de toekomst door de business model stress test, waarom dan?

29. In hoeverre heeft de business model stress test bijgedragen aan:

Meerdere vakjes kunnen aangekruist worden

- Nieuwe perspectieven  
 Onbeantwoorde vragen beantwoord  
 Gestructureerde discussies  
 Beter inzicht in het functioneren van het Living Lab  
 Beter toekomst beeld  
 Heldere stappen die uitgevoerd moeten worden

30. In welke mate heeft de business model stress test de volgende onderdelen beïnvloed?

	1 Weinig invloed	2	3	4	5 Veel invloed
Besluitvorming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Contact met de markt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inspelen op de markt vraag	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aanpassen aan wat de markt wil	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Het benaderen van de markt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Proactieve houding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

31. In welke fase van de organisatie levens cyclus is de business model stress test het meest bruikbaar?

- Startup  
 Groei  
 Volwassen  
 Neergang

## Afsluiting

Heeft u nog aanvullingen, verbeter punten, tips of andere punten waar de onderzoeker van op de hoogte gebracht moet worden?

*Eind tijdstip*

Dank voor het invullen van de enquête en het deelnemen aan de workshop over business modellen.

Mocht u willen weten wat er uit één van de onderzoeken is gekomen, dan kunt u Carlo Leopold mailen voor een update of een conclusie.

Graag uw document opslaan als "Enquete BM Living Lab - Persoonlijk 2 - uw voornaam en achternaam"  
Voorbeeld: Enquete BM Living Lab - Persoonlijk 2 - Carlo Leopold

Als dit document is opgeslagen, graag e-mailen naar Carlo.Leopold@gmail.com.

Hartelijk dank voor uw tijd en input.

## VI Workshop Observations

### Overview Results Workshops

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## VII Workshop observations overview

	Process Workshop 1	Process Workshop 2	Process Workshop 3	Process Workshop 4	Process Workshop 5
<b>BM Design</b>	People act from their own comfort zone, their own perspectives and believes	Prepare the BM upfront, structure the unstructured information and speed up the workshop process	wait and see attitude	Too long discussions with low added-value results ends with people dropping out of the process	Familiar with Business Models which shortens the introduction tremendously
	Pose Questions why they should exist	Figuring out the controls of the Business Model	Improve existing elements is a smooth process	Clear leader is used as a check for correctness	Pro-active attitude
	Whom are important?	More abstract questions to utilize maximum potential of the Business Model	Different perspectives improves the quality, but slows the process	Latecomer disrupts the process, need to start over	Focused
	Getting everyone on the same page	Scenarios come up during the process	Needs activation due to critical attitude	Needs activation due to critical attitude	Thorough analysis of the BM
	Take Notes	Lack of interactivity		Reference framework has been made	Pro-active and entrepreneurial spirit made
	Specifying after iterations	Take Notes		Referencing of the playing field	accumulate new information easily
	Divide and improve quality			Back and forth between elements to structure	high level discussions
			Discussion on Revenue-Models	BM language discussions	
<b>BMST</b>	Effects of choices on scenarios are not clear, and is scary	Lack of concreteness turns into a lack of focus	Short and to the point discussions, no-nonsense	Matrix with uncertainties and trends structures the discussion	Participants are the driving force behind the workshop, Timber is the oil of a working machine
	Difficulties with color coding	Afraid of show-stoppers	Accept arguments and decide faster	Leader does the wrap-up or summary if asked for	Speeding up the process, the foundation has been made
	More acceptance and better aligned vision, discussion arises when not aligned	Questions on their own motivation translates into a more objective perspective	Different perspectives improves the quality, but slows the process		Two-fold process for explaining topics, slows down but steps aren't skipped
	Accept arguments and decide faster	Looking back led to new insights	Group dividing discussions		too big of a knowledge gap between participants slows down the process
	Reference framework has been made	Low energy	Interruption of external factor		Triggering questions to stimulate thinking process
				Getting everyone on the same page	
<b>Evaluation</b>		Homework would improve the overall process	good explanation and easy to follow facilitation		It helps structuring
			Do BM and BMST seperately		

	Problems Workshop 1	Problems Workshop 2	Problems Workshop 3	Problems Workshop 4	Problems Workshop 5
<b>BM Design</b>	How to start?	unclear framework	How to fill in the CANVAS	Differences of BM Ontologies	
	Building network from scratch is too big of a step.	The level of detail in the Business Model is unclear		Outside disturbances greatly influence the process	
	Start with one element, and build upon that, else it will become a mess	Copy and Paste might occur when example is close to participating company		Participants with big personalities push out other participants(smaller personalities, or less interested)	
	Making a value network is difficult	What info to place in building blocks is difficult		Participants that come in too late greatly disturb/disrupt the workshop	
	Framework flexibility related questions slows down the process			Lose track of main goal during workshop	
	Too much information in one time can overwhelm participants			Selection of information is difficult if not trained	
			Bigger groups lead to a slow process		
			Alternate motives unclear, that hinders the trust within the group		
<b>BMST</b>	Leaves room for extra input/debate on scenarios	Energy level drops	Examples lead to understanding required information	Strategyzer is a helpful tool	
	Referencing is difficult in the beginning	Afraid of stating show-stoppers	Facilitator poses questions for stimulation		
	Color code safely, all orange, if facilitator is not present	Not honest when filling in the BM	negative scenarios can have positive effects		
	Facilitator steers discussions and outcomes		Deceptive use of input variables(colored arrows)		
	Low on energy, need to re-energize		Understanding the BMST will lead to new insights		
	Result should be very clear before and during the workshop				
Conclusion/Analysis is difficult to do online					
<b>Evaluation</b>		Filter out a to-do list at the end	Approval of correct use		
			You have to fill it in yourself		
			CANVAS itself is not self-explanatory		
			Single use CANVAS		
			expectation management		
		Explanation and examples must support the process			

	Idea Workshop 1	Idea Workshop 2	Idea Workshop 3	Idea Workshop 4	Idea Workshop 5
<b>BM Design</b>	Step-by-step guide, in decision tree style, with expert option. Support the tacit knowledge structure	Give examples throughout the Workshop	prepare the participants with reading material to set expectations	Make a mind map on what they now know, focused on the main purpose of the organization	Explanation on the scenario and chance aspect, scenario is 10% chance, but for now we assume this will happen.
	Focus participants by focusing on a single person/group/persona, else the overview is lost	explain the process that people will go through		Conflict Curve applies	
	Build the value network by starting with a central player, and work from here	If ideas on specific topics become too big, let them list a top-3		select BM Tool based on result	
	Drag and Drop network interface, with examples and pre-built designs	Zooming in and out of a BM, or value network could be very helpful		Have a clear vision before the workshop starts	
	List all revenue models, and shoot down which are not relevant and give examples how these can be used	Support on BM output(some sort of check) to prevent Garbage in = Garbage out		select BM Tool based on result	
	Participants' contributions, domain or expert knowledge, should be as high as possible	include a parking place, or parking spot			
		Explanation is essential			
		Paid add-on to check inconsistencies			
		Have a clear vision before the workshop starts			
<b>BMST</b>	choice of colors, for color coding	Discuss multiple market segments as separate instances	Give examples with negative scenarios but positive outcomes	Standing up really helps to actively participate with the workshop	
	Filter out an action list, which could lead to a Risk-Analysis	make sure multiple iterations are possible, e.g. show complete BM once in a while	no disruptions	Make sure everyone feels and is equal in the workshop	
	State the duration per column, to have a reference point on the time to take	Have breaks on time to re-energize		conversation starter with open-ended questions and statements	
<b>Evaluation</b>		Think of scenarios before the workshop	see BMST of companies 10 years ago and now, and compare them	Calculation model as a paid Add-on	Use the BMST when you're too deep in the project
		have energizing breaks		Preparation could be very useful	Don't expect magic things, what you put in, will come out
				Start with a filled in Business Model and build upon this	

## VIII Business Model Results

The Business Models of Zo-Dichtbij, 4LittleBirds, Holland Container Innovations and FairShare can be found in the coming four pages, one Business Model per page.

### VIII.I Business Model – Zo-Dichtbij<sup>8</sup>



<sup>8</sup> Created by Carlos Hidalgo (Master Thesis Project) – Obtained -17-10-2015

## VIII.II Business Model - 4LittleBirds

Key Features	Key Activities	Value Proposition	Customer Relationships	Customer Segments
<ul style="list-style-type: none"> <li>Smart Application</li> <li>Location</li> <li>Real Time</li> <li>Video recording</li> <li>Multiple watches</li> <li>Multiple watches</li> </ul>	<ul style="list-style-type: none"> <li>Research &amp; Development</li> <li>production watch</li> <li>Marketing &amp; Sales</li> <li>Support &amp; maintenance</li> </ul>	<ul style="list-style-type: none"> <li>Advanced application</li> <li>Design &amp; Interface</li> <li>Water Resistance feature</li> <li>Manufacturing of original application</li> <li>Mobile/Cloud</li> <li>Supportive</li> <li>A convenient set of user watch application</li> <li>More production application</li> <li>watch application</li> </ul>	<ul style="list-style-type: none"> <li>Personal</li> <li>- Smart</li> <li>- Digital</li> <li>Mobile</li> <li>Self service of users</li> <li>The customer learns the function of the watch of the smart watch</li> <li>watch on website user</li> <li>Marketing &amp; Support</li> </ul>	<ul style="list-style-type: none"> <li>Smart</li> <li>Watches - Smart</li> <li>Smart Watches</li> <li>Use Smart - Marketing support</li> <li>Smart application</li> <li>Manufacture - By Companies</li> </ul>
<ul style="list-style-type: none"> <li>Smart Application</li> <li>Location</li> <li>Real Time</li> <li>Video recording</li> <li>Multiple watches</li> <li>Multiple watches</li> </ul>	<ul style="list-style-type: none"> <li>Research &amp; Development</li> <li>production watch</li> <li>Marketing &amp; Sales</li> <li>Support &amp; maintenance</li> </ul>	<ul style="list-style-type: none"> <li>Advanced application</li> <li>Design &amp; Interface</li> <li>Water Resistance feature</li> <li>Manufacturing of original application</li> <li>Mobile/Cloud</li> <li>Supportive</li> <li>A convenient set of user watch application</li> <li>More production application</li> <li>watch application</li> </ul>	<ul style="list-style-type: none"> <li>Personal</li> <li>- Smart</li> <li>- Digital</li> <li>Mobile</li> <li>Self service of users</li> <li>The customer learns the function of the watch of the smart watch</li> <li>watch on website user</li> <li>Marketing &amp; Support</li> </ul>	<ul style="list-style-type: none"> <li>Smart</li> <li>Watches - Smart</li> <li>Smart Watches</li> <li>Use Smart - Marketing support</li> <li>Smart application</li> <li>Manufacture - By Companies</li> </ul>
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<ul style="list-style-type: none"> <li>Smart Application</li> <li>Location</li> <li>Real Time</li> <li>Video recording</li> <li>Multiple watches</li> <li>Multiple watches</li> </ul>	<ul style="list-style-type: none"> <li>Research &amp; Development</li> <li>production watch</li> <li>Marketing &amp; Sales</li> <li>Support &amp; maintenance</li> </ul>	<ul style="list-style-type: none"> <li>Advanced application</li> <li>Design &amp; Interface</li> <li>Water Resistance feature</li> <li>Manufacturing of original application</li> <li>Mobile/Cloud</li> <li>Supportive</li> <li>A convenient set of user watch application</li> <li>More production application</li> <li>watch application</li> </ul>	<ul style="list-style-type: none"> <li>Personal</li> <li>- Smart</li> <li>- Digital</li> <li>Mobile</li> <li>Self service of users</li> <li>The customer learns the function of the watch of the smart watch</li> <li>watch on website user</li> <li>Marketing &amp; Support</li> </ul>	<ul style="list-style-type: none"> <li>Smart</li> <li>Watches - Smart</li> <li>Smart Watches</li> <li>Use Smart - Marketing support</li> <li>Smart application</li> <li>Manufacture - By Companies</li> </ul>

### VIII.III Business Model - Holland Container Innovations



VIII.IV Business Model - FairShare









### IX.III Business Model Stress Test - 4LittleBirds

	Channel	Direct	Indirect	Partners	Agents	Wholesalers	Retailers	Other
Customer Segments	Green	Yellow	Yellow	Yellow	Green	Yellow	Green	Yellow
Revenue Streams								
Channels								
Customer Relationships	Green	Yellow	Yellow	Yellow	Green	Yellow	Green	Yellow
Key Activities	Green	Yellow	Yellow	Yellow	Green	Yellow	Green	Yellow
Key Resources	Green	Orange	Yellow	Yellow	Green	Yellow	Green	Yellow
Key Partners	Green	Orange	Yellow	Yellow	Green	Yellow	Green	Yellow
Cost Structure	Green	Yellow	Yellow	Yellow	Green	Yellow	Green	Yellow
Revenue Model	Green	Yellow	Yellow	Yellow	Green	Yellow	Green	Yellow

## IX.IV Business Model Stress Test - Holland Container Innovations

	100% (100%)	75% (75%)	50% (50%)	25% (25%)	0% (0%)	100% (100%)	75% (75%)	50% (50%)	25% (25%)	0% (0%)	100% (100%)	75% (75%)	50% (50%)	25% (25%)	0% (0%)
1. Will you be able to find a market for your product?	Yes														
2. Will you be able to find a market for your product at a price that will allow you to cover your costs?	Yes														
3. Will you be able to find a market for your product at a price that will allow you to cover your costs and still have a profit?	Yes														
4. Will you be able to find a market for your product at a price that will allow you to cover your costs and still have a profit and still be able to pay your employees?	Yes														
5. Will you be able to find a market for your product at a price that will allow you to cover your costs and still have a profit and still be able to pay your employees and still have a profit?	Yes														
6. Will you be able to find a market for your product at a price that will allow you to cover your costs and still have a profit and still be able to pay your employees and still have a profit and still be able to pay your employees and still have a profit?	Yes														
7. Will you be able to find a market for your product at a price that will allow you to cover your costs and still have a profit and still be able to pay your employees and still have a profit and still be able to pay your employees and still have a profit and still be able to pay your employees and still have a profit?	Yes														
8. Will you be able to find a market for your product at a price that will allow you to cover your costs and still have a profit and still be able to pay your employees and still have a profit and still be able to pay your employees and still have a profit and still be able to pay your employees and still have a profit and still be able to pay your employees and still have a profit?	Yes														
9. Will you be able to find a market for your product at a price that will allow you to cover your costs and still have a profit and still be able to pay your employees and still have a profit and still be able to pay your employees and still have a profit and still be able to pay your employees and still have a profit and still be able to pay your employees and still have a profit and still be able to pay your employees and still have a profit?	Yes														
10. Will you be able to find a market for your product at a price that will allow you to cover your costs and still have a profit and still be able to pay your employees and still have a profit and still be able to pay your employees and still have a profit and still be able to pay your employees and still have a profit and still be able to pay your employees and still have a profit and still be able to pay your employees and still have a profit and still be able to pay your employees and still have a profit?	Yes														

## IX.V Business Model Stress Test - FairShare

Business Model	Business Model	Business Model	Business Model	Business Model	Business Model	Business Model	Business Model	Business Model
Business Model 1	Business Model 2	Business Model 3	Business Model 4	Business Model 5	Business Model 6	Business Model 7	Business Model 8	Business Model 9
Business Model 10	Business Model 11	Business Model 12	Business Model 13	Business Model 14	Business Model 15	Business Model 16	Business Model 17	Business Model 18
Business Model 19	Business Model 20	Business Model 21	Business Model 22	Business Model 23	Business Model 24	Business Model 25	Business Model 26	Business Model 27
Business Model 28	Business Model 29	Business Model 30	Business Model 31	Business Model 32	Business Model 33	Business Model 34	Business Model 35	Business Model 36
Business Model 37	Business Model 38	Business Model 39	Business Model 40	Business Model 41	Business Model 42	Business Model 43	Business Model 44	Business Model 45
Business Model 46	Business Model 47	Business Model 48	Business Model 49	Business Model 50	Business Model 51	Business Model 52	Business Model 53	Business Model 54
Business Model 55	Business Model 56	Business Model 57	Business Model 58	Business Model 59	Business Model 60	Business Model 61	Business Model 62	Business Model 63
Business Model 64	Business Model 65	Business Model 66	Business Model 67	Business Model 68	Business Model 69	Business Model 70	Business Model 71	Business Model 72
Business Model 73	Business Model 74	Business Model 75	Business Model 76	Business Model 77	Business Model 78	Business Model 79	Business Model 80	Business Model 81
Business Model 82	Business Model 83	Business Model 84	Business Model 85	Business Model 86	Business Model 87	Business Model 88	Business Model 89	Business Model 90
Business Model 91	Business Model 92	Business Model 93	Business Model 94	Business Model 95	Business Model 96	Business Model 97	Business Model 98	Business Model 99
Business Model 100	Business Model 101	Business Model 102	Business Model 103	Business Model 104	Business Model 105	Business Model 106	Business Model 107	Business Model 108

## X Additional Homework Material

### Memo

**AAN** Deelnemers workshop                      **DATUM** 9 Augustus 2015  
**VAN** Timber Haaker                                      **EMAIL**  
**BETREFT** Business Model Workshop              **REFERENTIE**

#### WORKSHOP BUSINESS MODEL & STRESSTESTING

Komende week gaan we met elkaar aan de slag om een business model voor het *zo-dichtbij* platform te ontwerpen. In een geleide sessie, met veel ruimte voor brainstormen en interactie willen we een gezamenlijk beeld vormen van hoe een levensvatbaar business model er op termijn uit zou kunnen zien. We doe dat aan de hand van de zogenaamde STOF Business Model aanpak.

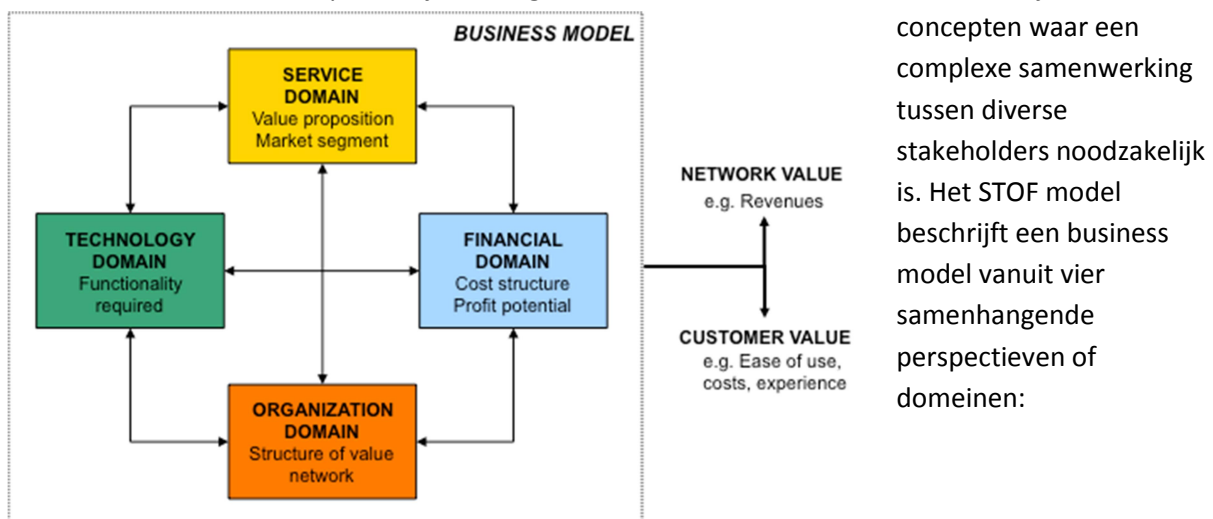
De workshop dient meerdere doelen. Ten eerste willen we natuurlijk met elkaar waardevolle inzichten genereren voor het business model van *zo-dichtbij*. Een tweede doel is inzichten genereren in de toepassing van STOF en stresstesting als onderdeel van het afstudeerwerk van twee betrokken studenten. Om die reden wordt de workshop ook door hen geobserveerd en vastgelegd.

Ter voorbereiding op de workshop willen we hier de STOF aanpak vast toelichten en u vragen al vast na te denken over het business model voor *zo-dichtbij*. Diverse voorbeelden van platformen en initiatieven zoals *zo-dichtbij* hebben wel duidelijk gemaakt dat het vinden van een geschikt business model een cruciale factor is voor het succes op de langere termijn.

#### INTRODUCTIE STOF MODEL

Het is u mogelijk niet ontgaan dat de termen 'businessmodel' en 'verdienmodel' de laatste jaren sterk aan populariteit hebben gewonnen. Een business model wordt wel gedefinieerd als 'de manier waarop organisaties waarde creëren met producten en diensten voor hun klanten en voor zichzelf'.

Er bestaan diverse aanpakken die kunnen ondersteunen bij het optellen van een business model, bijvoorbeeld het Business Model Canvas of het STOF model. In de workshop maken we gebruik van het STOF model. Deze aanpak is bij uitstek geschikt om een business model te beschrijven voor



concepten waar een complexe samenwerking tussen diverse stakeholders noodzakelijk is. Het STOF model beschrijft een business model vanuit vier samenhangende perspectieven of domeinen:

- **Service** domein: de klanten en gebruikers, het dienstconcept en de waardepropositie,
- **Technologie** domein: de technische functies en architectuur die nodig zijn om het concept te realiseren
- **Organisatie** domein: de benodigde business rollen, de actoren en hun strategische belangen, de rolverdeling en de manier waarop de samenwerking gerealiseerd wordt,
- **Financieel** domein: verdienmodel (opbrengsten), kosten, investeringen en risico's en hoe dit gedeeld wordt tussen de actoren

Het STOF model kent een uitgebreidere beschrijving dan hier geformuleerd, beschikbaar in diverse publicaties en (hand)boeken, maar voor de workshop zullen we ons op de genoemde aspecten concentreren – de zogenaamde QuickScan. Ter voorbereiding op de workshop kunt u al vast nadenken over wat u denkt dat de waardepropositie precies zou moeten zijn en over het verdienmodel achter *zo-dichtbij* ('wie gaat betalen?').

### OPZET VAN DE WORKSHOP

In het ochtend deel van de workshop werken we het business model uit voor *zo-dichtbij* op basis van de STOF aanpak. In het tweede deel van de workshop doen we een toets op de haalbaarheid en vooral de robuustheid van het concept en het business model door te kijken naar de impact van relevante toekomstige ontwikkelingen op het business model, denk aan ontwikkelingen in de markt, regelgeving, maatschappij, technologie etc. Deze toets doen we in de vorm van een zogenaamde business model stresstest.

	New entrants into FS		Regulatory flexibility on new players and new business		Personal data and privacy issues	
	Low market capture	High market capture	Conservative, inflexible, discourages change	Progressive, flexible, encourages change	"Chinese Walls" for customer data, limited data availability	Extensive commercial use of customer records, people at ease to release personal data
<b>Service design : business model variables</b>						
Customers and/or end-users	Yellow	Green	Red	Green	Yellow	Green
Target group (primary; secondary)	Yellow	Red	Red	Green	Yellow	Green
Value proposition	Yellow	Red	Red	Green	Yellow	Green
Service offering	Yellow	Red	Red	Green	Yellow	Green
Context of use	Yellow	Red	Red	Green	Yellow	Green
Effort for the customer	Yellow	Red	Red	Green	Yellow	Green
Customer relationships	Yellow	Red	Red	Green	Yellow	Green
<b>Technology design : business model variables</b>						
Applications	Yellow	Red	Red	Green	Yellow	Green
Devices	Yellow	Red	Red	Green	Yellow	Green
Service platforms	Yellow	Red	Red	Green	Yellow	Green
Channels	Yellow	Red	Red	Green	Yellow	Green
Additional functionalities	Yellow	Red	Red	Green	Yellow	Green
<b>Organization design : business model variables</b>						
Actors	Yellow	Red	Red	Green	Yellow	Green
Actors' resources & capabilities	Yellow	Red	Red	Green	Yellow	Green
Actors' strategic interests	Yellow	Red	Red	Green	Yellow	Green
Organizational Arrangements	Yellow	Red	Red	Green	Yellow	Green
Value activities	Yellow	Red	Red	Green	Yellow	Green
<b>Financial design : business model variables</b>						
Investments	Yellow	Red	Red	Green	Yellow	Green
Costs	Yellow	Red	Red	Green	Yellow	Green
Revenues	Yellow	Red	Red	Green	Yellow	Green
Risks	Yellow	Red	Red	Green	Yellow	Green
Financial arrangements	Yellow	Red	Red	Green	Yellow	Green

## XI Business Model STOF and CANVAS

The overview of the Business Model STOF and CANVAS.

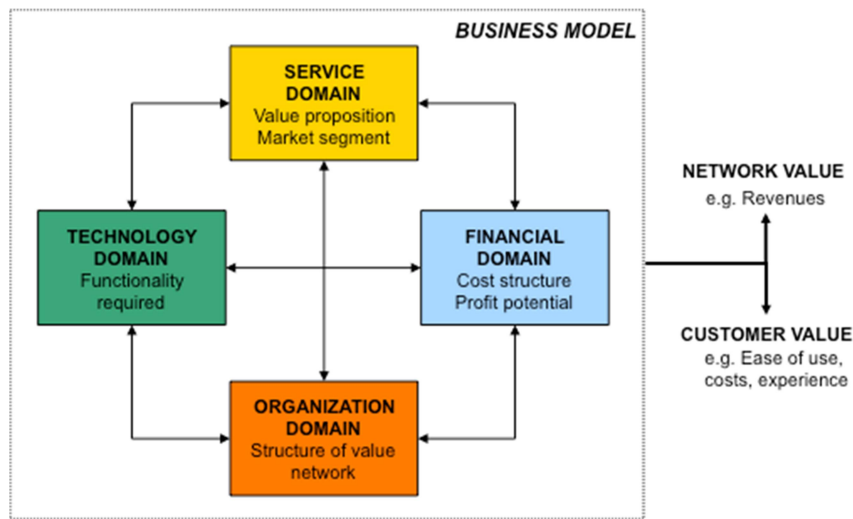


Figure 20 Business Model STOF(Haaker, 2014)

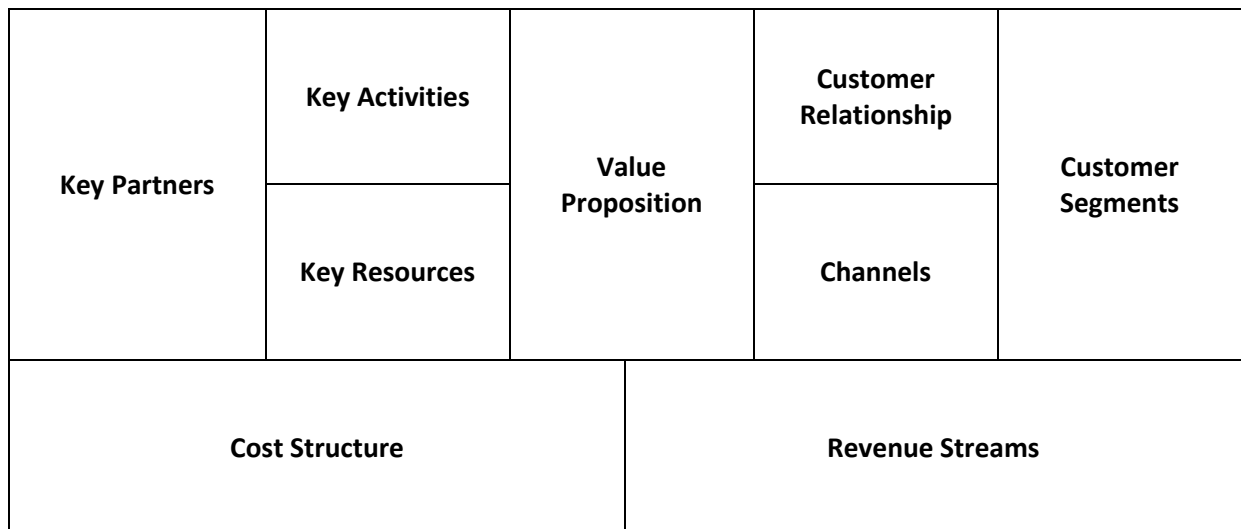


Figure 21 Business Model CANVAS, Adapted from(Osterwalder & Pigneur, 2009)

