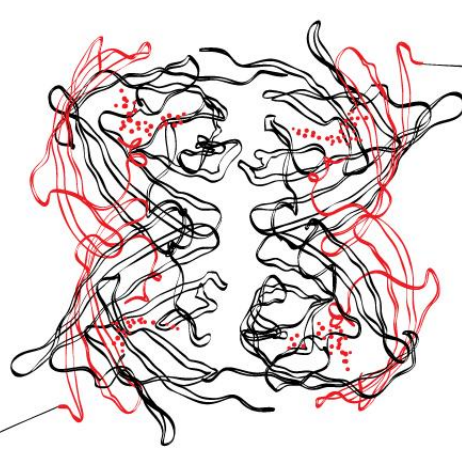


CRITICALLY ASSESSING THE
STRENGTHS AND LIMITATIONS OF THE
BUSINESS MODEL CANVAS

Master thesis Business Administration



Author: Bastian Coes
Student number: s1246615
E-mail: d.h.coes@student.utwente.nl
Study: Master Business Administration
Specialty: Innovation and Entrepreneurship

First Supervisor: Dr. Ir. J. Kraaijenbrink
Second Supervisor: Ir. B. Kijl

Date: March 13, 2014

Acknowledgements

This thesis is the last part of the graduation from the Master Business Administration at the University of Twente. The subject of this master thesis is in line with my specialization track and personal interest 'Innovation and Entrepreneurship'. I had a great time and learned a lot at the University of Twente. Therefore I want to thank all the people who shared knowledge with me during college hours as well during the group work.

Especially, many thanks to Dr. Ir. Jeroen Kraaijenbrink for facilitating this graduation topic about Business Model Canvas and for supervising the research. The given feedback was of great use during the process of research and writing the thesis. Furthermore, many thanks to second supervisor Ir. Björn Kijl for giving feedback at the last stage of my research.

Equally important are my words of thank to the participants in the interviews for scheduling a lot of time of their busy agendas and for validating the written results.

Last but not least, I would like to thank my family, girlfriend, friends and fellow students for supporting me during the whole master and especially during the thesis phase.

Nijverdal, March 2014

Bastian (D.H.) Coes

d.h.coes@student.utwente.nl

Executive summary

The Business Model Canvas is a popular tool for designing business models and has contributed to the use of more business models in organizations. Based on this research strengths and limitations are recognized which should be taken into account when working with the Business Model Canvas. The strengths and limitations are extracted from three sources of information. First a theoretical analysis and theoretical comparison with alternative business model tools is executed, second an online review is conducted at online blog posts and online comments on discussion threads are analyzed, and third, interviews with experienced business model developers is done. Based on the triangular results the Business Model Canvas strengths are about the centrality of capturing and delivering value when designing a business model. Furthermore, strong points are the visual representation, usefulness and simplicity of designing and communicating business models. The Business Model Canvas is seen by interviewees as a tool contributing to the communication about business models with employees, partners and customers. Next to these strengths, several limitations are identified. The main limitations based on the three sources of data are: the exclusion of external forces to a business model, such as competition, market factors and other external forces, and the narrowness of the Value Proposition. In the Business Model Canvas the focus is on creating value with revenue on return. This excludes other purposes of organizations such as non-profit and governmental organizations. Furthermore, the difference between the level of detail of description in the building blocks is a limitation. The separation of Key Activities and Key Resources imply a higher level of detail about what the organization need to do to create its Value Proposition, the same counts for Channels and Customer Segments. Which is directed at more detail then for example the building blocks Key Partners and Customer Segment. Other limitations are directed at what the mechanisms between the individual building blocks are. Suggested is to create these mechanism by team cooperation and making a story next to the Business Model Canvas. Business Model Canvas users should be at least aware of these limitations and know how to cope with limitations. Also business model developers could consider to adjust the Business Model Canvas or to use adjusted business model tools.

Research abstract

Aim of study The aim of this research is to identify positive and negative criticism about the Business Model Canvas. The business model literature and research field is a relatively new research topic. The concept business model for organizations is an increasing topic of interest. The results of this research may add insights to the discussion about business model tools and particularly on the Business Model Canvas on academic level as well as on business practice level.

Methodology The research goal is to find strengths and limitations of the Business Model Canvas. To answer the question: 'What are the strengths and limitations of the Business Model Canvas in the design and application phases of a business model?' an exploratory research is needed. A combination with an online review and a multiple-case study method is used to analyze different cases and the experience of the interviewee with the Business Model Canvas. The online review is used to find a broader view on strengths and limitations from business practitioners. An extensive online search of online resources is conducted. Sources of these comments are websites, blogs and forums. The multiple-case study interviews are conducted with six users of the Business Model Canvas in different types of organizations to extract experiences with the tool. During the interview the Business Model Canvas is analyzed on experience in the interviewees' organization, where the business model is analyzed on validity, reliability and controllability. The case selection is done through Snowball sampling and the data analysis is based on a narrative approach. Between these different stories the cases will be compared on agreement and disagreement.

Results Based on the different research methods interesting strengths and limitations of the Business Model Canvas are explored. Between the different research methods a pattern can be recognized between strengths and limitations. Strength of the centrality of value in making business models, the visual representation and usability is attributed to the Business Model Canvas. Limitations such as the exclusion of competition and the narrow aim to profit generating organizations are identified.

Implications This research contributes to the theoretical discussion about an ideal type of business model and corresponding business model tools. In practical terms this research contributes to the awareness of the strengths and limitations of the Business Model Canvas which may optimize business model design processes. Furthermore, this research provides clues of improvement of business model tools and in particular to the Business Model Canvas.

Future research To improve the reliability of the research a bigger sample should be used to strengthen the proof of the explored strengths and limitations. To gain more validity individual findings should be investigated in higher detail. For example, by conducting an empirical research on a big sample. Future research should be focusing to an ideal type of a business model and therewith an ideal business model tool.

Table of contents

- Acknowledgements 2
- Executive summary 3
- Research abstract 4
- 1. Introduction..... 7
 - 1.1 Motivation, relevance and research gap..... 7
 - 1.2 Research question 8
 - 1.3 Overview..... 9
- 2. Theory..... 10
 - 2.1 Definition, purpose and elements..... 10
 - 2.2 Relation Business model with other concepts 13
 - 2.3 Business model tools and alternative business model tools..... 19
 - 2.4 Conclusion strengths and limitations of the Business Model Canvas based on literature 29
- 3. Methodology 33
 - 3.1 Research Design 33
 - 3.2 Criteria for analyzing business model tools 37
 - 3.3 Research validity and reliability..... 40
- 4. Online review 41
 - 4.1 Online review on Business Model Canvas 41
 - 4.3 Conclusion strengths and limitations based on the online review 47
- 5. Results of the interviews 50
 - 5.1 General introduction of company and experience with the Business Model Canvas 50
 - 5.2 Validity of the Business Model Canvas..... 53
 - 5.3 Reliability of the Business Model Canvas 75
 - 5.4 Controllability of the Business Model Canvas 77
 - 5.4 Conclusion validity, reliability and controllability of the Business Model Canvas 80
- 6. Discussion and recommendations 83
 - 6.1 Results and discussion..... 83
 - 6.2 Practical implications..... 86
 - 6.3 Theoretical implication..... 87
 - 6.4 Limitations and suggestions for future research..... 88
- References..... 90
- Appendix 1: Alternatives of the Business Model Canvas 94
- Appendix 2: Interview protocol..... 98

Table of contents

Table 1: Elements of Business Model Canvas	13
Table 2: Lean Canvas	25
Table 3: Fluidminds Business Model Canvas.....	26
Table 4: IBM’s Component Business Modeling	28
Table 5: The Value Model	29
Table 6: Strengths and limitations based on alternative business model tools ..	32
Table 7: Search terms for online review	34
Table 8: Meta details of cases	36
Table 9: Interview protocol.....	37
Table 10: Criterion validity	39
Table 11: Criteria reliability and controllability	39
Table 12: Research validity and reliability.....	40
Table 13: Sources of online strengths and limitations of the BMC	41
Table 14: Results of the online review of Business Model Canvas.....	49
Table 15: Company ID and experience of the interviewee	50
Table 16: Construct validity: Value proposition	54
Table 17: Construct validity: Customer segment	55
Table 18: Construct validity: Channels	56
Table 19: Construct validity: Customer relations	57
Table 20: Construct validity: Cost structure and revenue streams	58
Table 21: Construct validity: Competitive strategy	59
Table 22: Construct validity: Business model innovation	60
Table 23: Construct validity: Key resources and Key activities	61
Table 24: Construct validity: Key partners.....	61
Table 25: Internal validity: Easy to understand	62
Table 26: Internal validity: Visual representation	63
Table 27: Internal validity: Easy to operate	64
Table 28: Internal validity: Completeness.....	65
Table 29: Internal validity: Creativity.....	67
Table 30: Internal validity: Organization alignment	68
Table 31: Construct validity: Technological innovation	68
Table 32: External validity: Communicability	70
Table 33: External validity: Combination with other tools	71
Table 34: Pragmatic validity: Success of the organization.....	72
Table 35: Pragmatic validity: Continuity	73
Table 36: Pragmatic validity: Organizational impact of the business model	74
Table 37: Pragmatic validity: Financial calculations.....	75
Table 38: Reliability: Stable results	76
Table 39: Replicability: Replicability of results.....	77
Table 40: Controllability: Decisions.....	78
Table 41: Controllability: Assumptions	78
Table 42: Controllability: Argumentation	79
Table 43: Strengths and limitations based on the Business Model Canvas.....	82

1. Introduction

1.1 Motivation, relevance and research gap

The concept 'business model' is relatively new in the business research field (Osterwalder, Pigneur, & Tucci, 2005). The origin lies in the technology industry and is becoming of increased importance in other industries. The business model concept has grown because of the development and increase in communication functionality of the internet. Therefore new ways of doing business have emerged. Due to the growth, the way of doing business is changing in terms of getting in touch with customers and new options to create value: new variations and implementation of business models are possible and needed. These new business models need to renew the idea of creating, capturing and delivering value in a new business environment (Amit & Zott, 2001).

Next to the interest in business models of different industries to keep up with the new business environment, there is also more attention for business models from the business academic field. A link is found between the number of academic journals which use the word 'business model' and the NASDAQ (Osterwalder et al., 2005). This represents a significant growth in academic interest which followed the graphic of the NASDAQ (e.g. before 2005). Despite the increase in academic articles about business models, the academic field has still no consensus about definition and structure (Morris, Schindehutte, & Allen, 2005; Zott, Amit, & Massa, 2011) and no consensus about the purpose and goal of business models. This consensus is not yet achieved because this research field is relatively new.

It seems that consensus of the business model concept and purpose is initiated through business mapping tools, such as the Business Model Canvas which is based on the dissertation on business models of Osterwalder (2005, 2010). In the last decade several academic papers have been published in which the academics introduce and investigate different aspects of business models such as: how to analyze, conceptualize, define, apply, create, understand, embed, value and organize business models. Following these business model tools in a standardized way will not always lead to good business models (Casadesus-Masanell & Ricart, 2010). As Casadesus-Masanell and Ricart (2010) state: 'Designing new business models is closer to an art than to a science' (Casadesus-Masanell & Ricart, 2010, p. 31). Which is not a carte blanche to not scientifically investigate the concept of a business model but illustrates the complexity of the research field.

Next to the introduction into the growing and immature research field of business models, I recognized a potential gap between the theoretical papers and the business practice. There might be a misalignment between the abstract business literature and the business practice. This gap is twofold; the business literature about business model is aiming at describing means, classifying business models and research business models as recipes for business model designers (Baden-

Fuller & Morgan, 2010). This research field has not achieved consensus for an ideal business model construct. The second gap is based on the business literature, the focus is more on descriptive issues than on practical issues (Zott, Amit, & Massa, 2010). Focus in academic literature about business models is concerning definitions about the business model itself, value, monetary and financial aspects, and architectural issues concerning network, and logistics (Zott et al., 2010). Business academics need to align more with the business practice to cope with this practical relevance issue. The business practice is facing the limitations of the business models and need academic evidence to construct an ideal type business model (Baden-Fuller & Morgan, 2010). Another academic discussion is about the fuzziness of definitions in business modeling practice (Magretta, 2002), causal relations are not clear and not tested in reliable settings (Zott et al., 2010). This gap about relevant practical limitations and academic discussion is partly debated by academics and consultants through making business model tools and discussing important elements of a business model. Resulting in assemble different aspects of business models into one easy to use tool or ideal type.

The attention to the business model topic is increasing in the academic field as well as in the practice field experience is growing among the business practitioners in the combination between these topics. Business model tools seem to fill the gap between business models and practice. But are these tools really fitting the practice and do the business models concepts fully explain what is happening when a business model is used in practice? Is there a lack of experience in an organization on how to use business models or is there no sense of urgency for using business models and their tools? Are the business model tools the rescuers of businesses in danger? Or is it just another tool to look at the same things differently?

To answer these questions, it is useful to make an overview about issues involving the use of business model tools based on literature study and interviews. During the study I identified the tool Business Model Canvas by Alexander Osterwalder as one of the dominant tools and I investigated the use of this tool in organizations. This research will help people to assess the usefulness, functionality and efficiency of the business model tool better.

1.2 Research question

The aim of this research is to identify positive and negative criticism about business model tools and particular about the Business Model Canvas. The results may add insights to the discussion about business model tools on academic level as on business practice level, in the relatively new research and business topic.

1.2.1 Main research questions:

- What are the strengths and limitations of the Business Model Canvas in the design and application phases of a business model in practice?

1.2.2 Sub research questions:

- What are the strengths and limitations of the Business Model Canvas based on academic literature and alternative business model tools?
- What are the strengths and limitations of the Business Model Canvas based on online discussion?
- What are the strengths and limitations of the Business Model Canvas when applied to different cases in different organizations?

1.3 Overview

In chapter 2 business models are theoretically investigated. This investigation is about business models itself with its related topics and usefulness in organizations. Next to this general theorizing, business model tools and particular the Business Model Canvas are theoretically discussed. In chapter 3 an online review of opinions about business model tools is provided. In chapter 4 an overview and comparison is given of different business model tools, which will be compared with the Business Model Canvas. Based on this comparison, different criteria of analyzing business model tools must be extracted. In chapter 5 the critics and opinions will be tested based on interviews. In this chapter the method will be outlined, empirical evidence will be exposed and results will be described. In chapter 6, the conclusion about criticizing business model tools will be given and discussed. Based on this conclusion a short disclaimer is written to help using business model tools in practice.

2. Theory

In this chapter the theoretical foundation is given of business models in general, business models in organizations and the business model practice. The business model practice topic is about business model tools and particularly the Business Model Canvas. To have an extensive theoretical foundation the method 'Narrative summary', based on Popay et al. (2006), is used in combination with the literature searching method based on Hart (2001). The Narrative summary approach is a method to describe the theory from existing and diverse types of research. By using comments and interpretation based on the theory it may lead to new insights on important issues from a topic (Van Aken & Andriessen, 2011). However, according to the same authors, a limitation of this study is the potential bias towards the existing perspective of the researcher. To cope with this potential bias the conclusions of this chapter are compared with the results of the online review and the data gathered from the multiple-case study.

The method used to search for literature is a combination of literature search on academic search engines and the 'Snowball' method (Hart, 2001). Search engines used are 'Scopus.com' and 'Scholar.google.com'. The literature search is based on the search terms; 'business model', 'business model tool', 'business model in organizations', 'business model canvas' and articles which are published later than 2000, are downloaded and read. However, to specify the literature more, the lack of review articles and to find articles which are not found by the combination of words, the 'Snowball method' is used. This method is about searching the reference list of found articles to explore interesting articles (Hart, 2001). To not neglect important or fundamental articles some exceptions are made to the year of publishing. Based on this extensive literature research topics are derived which are interesting for developing criteria for analyzing business model tools.

2.1 Definition, purpose and elements

2.1.1 Defining the business model concept

This thesis is about analyzing business model tools. To understand how to look at business model tools a deep understanding is needed of the construct of business models. There are several articles directed at creating consensus about the business model concept. For example, the investigation of thirty definitions in Morris et al. (2005), resulted in three major classes of the definition of a business model; *economic*, which definition is aimed at profit generation through variables as revenue streams and cost structures; *operational*, this definition is directed at the architectural configurations of business models by aiming at creating value through infrastructural design of a business; *strategic*, which definition is directed to the positioning of a firm, taking in account factors such as market position and growth opportunities. In the same research paper by Morris et al. (2005), the most discussed concepts in business model papers are investigated; value offering, economic (financial) models, customer interface and partner network. The concepts have overlap with the purposes of business

models, mentioned in the next paragraph: value offering and economic models link to the economic purpose, customer interface to operational and partner network with the strategic purposes of business models. In work of Zott et al. (2011) three business model purposes are investigated, through an literature review of 103 high ranked articles; business models as an e-business model archetype; business models as an activity system; and business models as cost and revenue architecture. These main concepts proposed by Morris et al. (2005) and Zott et al. (2011) can be found in the definitions of several highly cited papers about business models. For example the perspective of Teece (2010) towards business models: 'A business model reflects management's hypothesis about what customers want, how they want it and what they will pay and how an enterprise can organize to best meet customer needs and get paid well for doing so' (Teece, 2010, p. 191). On another perspective 'a set of generic level descriptors of how a firm organizes itself to create and distribute value in a profitable manner' (Baden-Fuller & Morgan, 2010, p. 157) Or, a business model is an architecture of organizational and financial structures of a business (Chesbrough & Rosenbloom, 2002). And a 'Story that explains how enterprises work' (Magretta, 2002, p. 4). One of the latest definitions of a business model is from Osterwalder et al. (2005): 'a conceptual tool containing a set of objects, concepts and their relationships with the objective to express the business logic of a specific firm' (Osterwalder et al., 2005, p. 1). In the popular work Business Model Generation Osterwalder defined: 'A business model describes the rationale of how an organization creates, delivers and captures value' (Osterwalder & Pigneur, 2010, p. 14). In short: business models are about how a business works and what kind of value a business is delivering and how this is communicated and transferred to the customers.

2.1.2 Purposes of business models

Next to the definition discussion, there is discussion about the purposes of a business model (Zott et al., 2010; Zott et al., 2011). In this literature review different purposes of a business model are outlined: business models as a unit of analysis and business models as a holistic approach, how a business is doing business internal and external and business models as value capturing and value creation mechanisms (Zott et al., 2011). Chesbrough and Rosenbloom (2002) mention a business model as mediator, because technology and economic value is mediated by the construct business model. A business model gives business managers the opportunity to capture the potential or latent technological value and make it commercializable by finding the right value proposition, market segment, value chain, cost structure, profit potential, value network and competitive strategy (Chesbrough & Rosenbloom, 2002). This business model creating process is a process of shaping and reshaping to create opportunities to capture and deliver value. In Zott et al. (2011) a business model is seen as connector between an innovative technology and customers, or between technology and resources of other firms. In other words a business model is "nothing less than the organizational and financial 'architecture of the business'" (Teece, 2010, p. 173).

A sound business model is an important factor in creating a successful company but is not explaining or predicting the successfulness of a company (Chesbrough & Rosenbloom, 2002). To distill the potential value of innovative technology is one of the important purposes of business models (Zott et al., 2011). To create a successful business model which is aligned at the potential value, the business model shaping is addressed as a process of reshaping and creating new opportunities to deliver value. A business model must be viewed as 'architecture of revenues' to capture value from innovative technology, according to the same authors. Processes needed to explore the relation between technological value and economic value. These processes of developing and reshaping of business models must become a dominant logic in market introduction of technological innovation according to Chesbrough and Rosenbloom (2002).

To conclude, purpose of business models can be characterized in two functions: as a tool which be used as an unit of analysis of a company, by using a business model a business can be analyzed. The second function is as a tool to mediate between a technology or idea and potential customers, which imply a method to capture and deliver value to a customer. In this thesis the focus is on the business model as a mediator.

2.1.3 Business model dimensions

Some literature about business models is dedicated to the analysis, constructing and categorizing of business models in terms of 'business model elements', 'business model dimensions' and 'business model building blocks' (Ballon, 2007, p. 3). According to (Weill, Malone, D'Urso, Herman, & Woerner, 2005), a business model is composed of two elements; 'what the business does' and 'how the business makes money doing these things' (p.5). These two elements are translated in assets and relations with buyers. The assets are divided in: physical, financial, intangible and human assets in combination with the relation with buyers (Weill et al., 2005). Furthermore, in Baden-Fuller and Morgan (2010) a business model is seen as a combination of characteristics and its activities of a business which are captured in essential recurring elements. The business model suggest why it work, and convey how the essential elements work together (Baden-Fuller & Morgan, 2010, p. 167). With these elements numerous building blocks can be developed.

To formulate the elements, in Ballon (2007) a framework is formulated, which consists of parameters of value network, functional architecture, financial modeling and value proposition. This framework is directed at the internal mechanisms of a business but does not take into account customers, environment and competitors. Ballon (2007) therefore did not cover all aspects of a business model. Zott et al. (2011) formulated based on literature review four important parameters of a business model: 'notion of value (e.g., value stream, customer value, value proposition), financial aspects (e.g., revenue streams, cost structures) and aspects related to the architecture of the network

between the firm and its exchange partners (e.g., delivery channels, network relationships, logistical streams, infrastructure)' (p.10).

In Osterwalder (2005) the analyzability and communicability is improved by proposing business model framework in the mould of a canvas. The canvas gives business practioners the opportunity to analyze, manage, understand, share, prospect and patent a business better (Osterwalder et al., 2005). The framework which is used in this master thesis, consist of four dimensions of a business model: value, architecture of the relation between firm and exchange partner, what the firm is doing and financial aspects. In table 1 the elements of the framework of the Business Model Canvas are linked to the individual building blocks.

Building Blocks of Business Model Canvas	
Value	Value Proposition
Architecture of the relation between firm and exchange partner	Key Partners, Customer Relationship, Customer Segment, Channels
What the firm is doing	Key Activities, Key Resources
Financial Aspects	Cost Structure, Revenue Streams

Table 1: Elements of Business Model Canvas

To conclude, the dimensions used to analyze a business model are based on four key elements: Value proposition, architecture of the relation between the firm and its exchange partners, architecture of what a firm is doing and financial aspects.

2.2 Relation Business model with other concepts

Based on the literature review different relations between the concept business model and other business topics are identified. In this paragraph the most important are outlined.

2.2.1 Business models and value

A lot has been written about value in academic papers through the years. Some authors tried to explain the value mechanisms by theoretical frameworks. In a literature study of 59 firms by Amitt & Zott (2001), they concluded that existing theoretical frameworks such as the Strategy network by Gulati, Nohria and Zaheer (2000), the Resource based-view of Barney (1991), value chain analysis of Porter (1985), Transaction cost economics of Williamson (1983) and Schumpeterian innovation of Schumpeter (1934) are not covering the whole value creation of a business. Therefore they suggest a framework to create value beyond the value creation mechanisms of the aforementioned theories (Zott et al., 2010). The framework is based on four sources of value creation which can strengthen and compensate each other. Sources of value are: lock-in, complementarities, efficiency and novelty. Based on this framework, the authors suggest that a business model is an important concept for innovation and that by

creating new sorts of business models, value can be created (Amit & Zott, 2001; Zott et al., 2011).

Much attention has been raised to value when the digital economy emerged because this new economy demanded new ways of value creation mechanisms based on a networked perspective with partners and users (Zott et al., 2010). Some authors suggest business models as a value creation mechanisms (Amit & Zott, 2001), others as value capturing mechanisms (Zott et al., 2010). In business model literature, value has an important role. Through value, the performance of a business mechanism or model can be made measurable. When the perceived price of the delivered value is higher than the paid price of the value, a customer will buy it (Anderson & Narus, 2004). In terms of business models, the proposed value must be higher than the costs of all individual parts of a business model, such as distribution, resources and product assembly. To take it a step further. The value creation is not only for the customer. The total value creation of a business model is the total value for all business stakeholders such as customers, partners and, suppliers (Brandenburger & Stuart, 1996). Another perspective of value creation in new business models is that value creation and value capture mechanisms take place in a value network where the network partners complement the firm resources (Zott et al., 2010). In Chesbrough & Rosenbloom (2002) they emphasize the value part of a business model tool: a business model is a sort of hypothesis of delivering customer value and not as an elaborated plan how to run a business.

Value is a central concept in business models. In a business model, the creation, capturing and delivering value is explained. The business model is creating a story or synthesis between the different value contributors. The different value contributors might have no value on their own, but in combination with other value contributors, value can be created. For example, with technological innovations 'a technology alone has no single objective value' (Chesbrough, 2010, p. 354), through a business model value of a technology can be commercialized.

2.2.2 Business models and strategy

As mentioned by Brandenburger and Stuart (1996) the value creation of a business model is based on all value for all stakeholders such as customers, partners and suppliers. However, in strategy literature the emphasis is on value capturing, competitive advantage and competition where in business model literature the emphasis is on partnering, creating joint value and cooperativeness (Zott et al., 2011). In literature and in practice the terms 'business models' and 'strategy' are mixed up (Magretta, 2002). In Mansfield and Fourie (2004) strategy is defined as: 'Strategy is about management concerned with the firms creation of sustainable competitive advantage... (and) is the sum of managerial choices and is a blend of deliberate actions, tactical responses and organizational learning' (p.35). An alternative view is proposed by Seddon and Lewis (2003). They suggest that the firms strategy is a representation of a how to cope with

the real competitive environment and a business model is a blueprint of how the firm works to fulfill customer needs. In other words, since a business model is an abstracted and simplified view of the firm's strategy, a business model can only be used for one organization. But a company strategy can have different business models, because there can be more different abstractions with other accents of the strategy. To conclude, business models only represent the core logic for creating value and not the strategic implementation of it (Magretta, 2002; Seddon & Lewis, 2003, p. 11).

In other academic studies, the concepts of product-market strategy and other strategic perspectives are discussed in relation to business models. In early papers, business models were seen as product-market strategies. Although in later papers, there is a growing consensus that a business model is different from product-market strategy and other strategic concepts (Seddon, Lewis, Freeman, & Shanks, 2004; Zott et al., 2010). According to Zott et al. (2010) the concepts product-market strategy and business model are different, they are not substitutes but complement each other. Product-market strategy is, in contrary to business models, more focused on how to capture value (Chesbrough & Rosenbloom, 2002), how to sustain competitiveness (Mansfield & Fourie, 2004) and how to differentiate from the competition (Magretta, 2002). Business models are about how a business works and how it fits together. In other words, a business model is based on an activity perspective (Casadesus-Masanell & Ricart, 2010; Mason & Spring, 2011; Richardson, 2005; Seddon et al., 2004).

Furthermore, strategy is the mediating concept between a firm's business model and its environment (Mansfield & Fourie, 2004) and is needed when a business wants to be better than the competition. To become better than the competition, is according to Magretta (2002), being different than your competitors based on your business model and your strategic decisions, and about the positioning of a firm in the industry, which is based on the five-forces model of Porter (1980). Focus on strategic decisions is necessary, a clear goal and direction need to be designed because a business with a focused strategy in combination with a focused business model gives one high odds for success (Mansfield & Fourie, 2004).

To conclude, strategy and business models are complementary and depend on each other (Zott & Amit, 2008). The way of coping with competition makes the difference in achieving success, in terms of superior performance in respect to the competitors (Magretta, 2002).

2.2.3 Business models and organizational alignment

Business models can also be used as an organizational alignment tool (Magretta, 2002). By using a business model it is easy to communicate to every employee what kind of value a company wants to deliver and how to do so, although the way of communication depends on what kind of form the business model is written or designed. In Osterwalder and Pigneur (2010) the Business Model Canvas is seen as a tool to design a business model and make a visual

representation of it. This makes it easier to communicate and to tell the story behind the business model. Stakeholders involved in the business model will be more involved and this might lead to better firm performance. In Santos, Spector and Van Der Heyden (2009), the importance in business model innovation of behavioral aspects is emphasized. They mention that assigning business model innovation to a corporate office may harm the innovation and suggest engagement from corporate managers and business unit managers. Managers of business model innovation should focus on the relational dynamics. In other words, based on former research: if companies are trying to innovate a business model or with designing a business model for a technological innovation, it is important to align with employees and managers. If managers fail to communicate and create awareness for a new or improved business model, the business model may fail due to resistance from other managers or employees (Santos, Spector, & Van der Heyden, 2009). A threat to business model innovation in relation to awareness and engagement is identified in Chesbrough (2010). Getting comfortable with the existing business model and revenue generation is often a problem with successful business models. Managers often base their success on the existing business model. This might lead to biases towards the existent business model and may lead to missing potential new revenue generating technologies. Since managers will not support business model experimentation if it will harm their existing business models. To overcome this organizational alignment, awareness is needed to overcome the resistance to new business models (Chesbrough, 2010).

2.2.4 Business models and resources and activities

In the paragraph about business model dimensions, business models are partly about what a firm is doing. As outlined earlier the business model dimensions is based around value. To create value, resources and activities are needed (Chesbrough & Rosenbloom, 2002; Weill et al., 2005; Zott et al., 2010). Resources are needed to create, communicate and deliver the value proposition (Barney, 1991). So for every business different resources are needed and are essential for sustainable competitiveness (Barney, 1991). Resources can be physical, such as a commodities but they can also be intellectual, such as knowledge or experience. Other types of resources are financial and human resources. An addition is needed on this Resource Based View, because only resources alone are not sufficient for running a business. Through the addition of different activities and heterogeneous mental models, in combination with resources, value is created for a company (Foss, Klein, Kor, & Mahoney, 2008).

2.2.5 Business model and cost and revenue streams

A key logic of a business is that there is a transaction of value and revenue (Anderson & Narus, 2004). As conceptualized earlier, value is the sum of the total value of all business stakeholders such as customers, partners and suppliers (Brandenburger & Stuart, 1996). Through the conceptualization of Anderson and Narus (2004) value is made measurable through money. A part of a business model is dedicated to mechanisms to receive revenues in return for the delivered

value. Though the whole created value cannot be captured into the revenue stream. For example, as mentioned in Brandenburger and Stuart (1996), value can be delivered to the customer and also to partners and suppliers. However, this will not necessarily lead to revenues in money, but to other benefits of the delivered value. According to Chesbrough and Rosenbloom (2002) a business model is an 'architecture of the revenues' (p.529). In this article, a multiple-case study is conducted to explain the role of business models in the commercialization of technological innovations, which are technology-driven. They propose a construction where a business model is the mediating factor between technology and value creation. Defining business models as an architecture of revenues explains the value creation mechanism and gives a business the opportunity to deliver value and get revenues in return, based on the firms resources and market outcomes (Teece, 2010).

2.2.6 Business model and innovation

Next to the important role of business models in technological innovations in which a business model is used to capture and deliver value from innovations, it can also innovate by itself (Teece, 2010). In literature, there is growing agreement that innovation of business models is a very important factor in the performance of a firm (Zott et al., 2011). Business models can be innovated through reorganizing different kind of processes and assets, or can be innovated through collaboration with other organizations to complement services or goods a business model is lacking (Zott et al., 2011). So, companies look outside their company and work together with customers and competitors for commercially interesting new ideas or resources in cooperation with their own resources or ideas. This concept is called 'open innovation' (Chesbrough, Vanhaverbeke, & West, 2005). To commercialize new ideas, a new business model is often necessary. As mentioned by Chesbrough (2010), organizations are better at developing new technology, than in innovating business models. Organizations have problems with innovating business models, because when experimenting with business models different barriers arise in their existing company. One reason is based on Amit & Zott (2001) where business models are characterized by novelty, lock-in complementarity and efficiency. This gives a potential conflict with the existent business model that is responsible for the value generation of the running business because managers often will not support experiments with business models since it may threaten their ongoing business (Chesbrough, 2010).

In Chesbrough (2010) business model experimentation is proposed to cope with the necessity of business model innovation. To cope with the barriers towards business model innovation, Chesbrough (2010) proposed business model construct maps as a potential solution for business model experimentation, such as 'component business modeling' of IBM and 'business model canvas' of (Osterwalder et al., 2005). This gives businesses the opportunity to experiment with business models, but it is not the solution for the resistance against new business models. Therefore organizational leadership is needed to experiment on

basis of the effectuation concept (Chesbrough, 2010). Effectuation is a process where actors without in-depth information from their environment, can generate new information by taking actions and experimenting, that lead to possibilities which might be latent at first sight (Sarasvathy, 2009). Next to effectuation, leadership is an essential factor in business model innovation, as mentioned before, CEO's or managers might be biased towards the old business models, therefore middle managers are of high importance to this type of innovation (Chesbrough, 2010). Although, for middle managers it is difficult to find a balance between efficiency in their daily job and exploration of new business opportunities e.g. business models. This difficulty is conceptualized as 'organizational ambidexterity' (O'Reilly III & Tushman, 2008). According to Chesbrough (2010) to become successful in business model innovation, organizations need to have a clear vision of leadership directed at business model innovation. This way experimentation with business models will have enough resources and will conquer barriers within the organization. This will lead to discovery-driven models (McGrath, 2010).

Next to business model innovation, technological innovation needs to be captured in a business model. 'Great technological achievements commonly fail commercially because little attention has been given to designing a business model to take them to the market properly' (Teece, 2010, p. 192). There are several examples given in Chesbrough & Rosenbloom (2002) of discovery-oriented technological innovations which seem to have a very high value adding potential for the market. In this paper these innovations were analyzed and it is concluded that some innovations failed to capture and deliver the value to the customers. One solution is to use business models to capture the value and the business mechanisms of a technological innovation. By using a business model, the captured value can be delivered to the customers (Chesbrough & Rosenbloom, 2002). This proposition, that a business model is capturing value and is explaining the business mechanics, is confirmed by Teece (2010): a business model is an architecture of a firm, which is built around the firm's revenues, costs, resources, value proposition and the value capturing mechanisms.

However, with discovery-driven technological innovations there is often limited information about potential customers, competitors, substitutes and other environmental factors. Simply because it is new and not introduced to the market and even because it is unknown if the technology will fulfill latent needs, in other words, if there is a market for this technology. But to make a successful new business model it is important that it is based on well understood intelligence and information about the market, suppliers and customers. In combination with creativity and entrepreneurial spirit it can lead to new and innovative business models which meet customer needs (Teece, 2010).

2.3 Business model tools and alternative business model tools

In this thesis the Business Model Canvas is the central tool of investigation. The Business Model Canvas is a business model ontology (Zott et al., 2010), which describes the characteristics of business models and tries to explain the whole 'picture'. The focus of this ontology is to have a common language to discuss business models in practice, the applicability and usability in business context is one of the aims of a business model tool. Therefore, in this thesis the applicability and usability of the Business Model Canvas is analyzed. To introduce the business model canvas, a theoretical introduction is given of the Business Model Canvas and compared to other business model tools.

2.3.1 Business Model Canvas

In the previous part of this chapter some introduction is provided about the Business Model Canvas (BMC). To have a better understanding about what the mechanics are in the BMC, the whole business model with its building blocks is described in following paragraph. The goal of the Business Model Canvas is to introduce a standardized way for designing business models. With principles that it has to be easy to understand and can be easily communicated through a nice design, they do not speak of developing a business model but designing one (Osterwalder & Pigneur, 2010).

To get a clear view of what business models are, the definition of business model used to make the BMC is: 'A business model describes the rationale of how an organization creates, delivers and captures value' (Osterwalder & Pigneur, 2010, p. 14). In other papers by Osterwalder, a business model is explained as 'a conceptual tool containing a set of objects, concepts and their relationships with the objective to express the business logic of a specific firm' (Osterwalder et al., 2005, p. 1). These definitions link to the earlier concept of the BMC as an ontology. It explains the business logic for capturing, creating and delivering value based on one firm and can be applied and compared with other firms' business models. As mentioned before, one of the major purposes of the BMC is the communicability of business models. It is a tool for designing and visualizing business models, which makes the communicability much easier and standardized. As mentioned in Osterwalder (2004), the BMC is created to make it easier to design a business model and to motivate business people to think differently about their business model. To come to this result, Osterwalder and Pigneur (2010) created a canvas on which, in their opinion, every business model can be based. The structure of the canvas is based on nine standardized building blocks. These building blocks can be structured through the main topics of the business model dimensions: value proposition (Value proposition), architecture of the relation between the firm and its exchange partners (Customer Segment, Channels, Customer Relationship and Key Partners) architecture of what a firm is doing (Key activities and Key resources) and financial aspects (Revenue stream and Cost structure).

These building blocks give insight in what to include in a business model, but the main building block is the value proposition. The other building blocks are supportive to this value proposition to deliver, capture and activate the value proposition. The harmony between the different building blocks leads to a unique business model, in other words the combination of and the mechanics between different building blocks count, not the sole unique and individual building block (Osterwalder & Pigneur, 2010). On the mechanics and the use of the business model canvas will be elaborated more in further pages. In figure 1 there is a visual representation of the canvas. To get a better understanding of what the Business Model Canvas is, the nine different building blocks and mechanics are described.

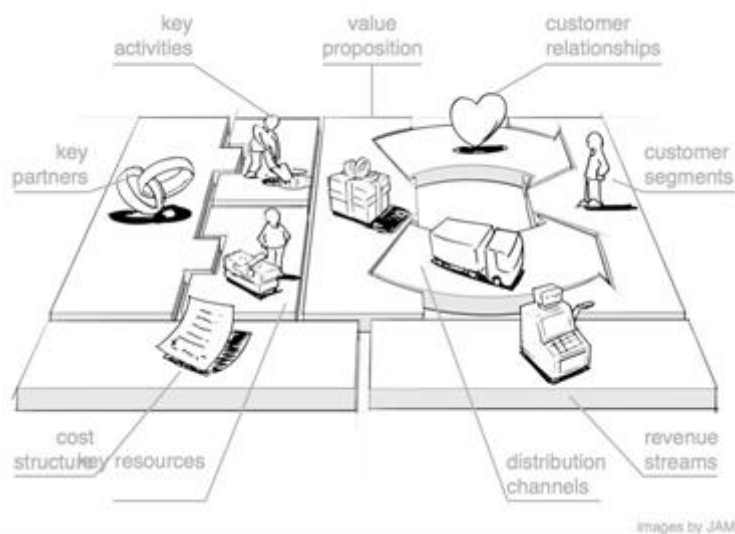


Figure 1: Business Model Canvas by Osterwalder and Pigneur (2010)

As described earlier in this chapter dimensions of a business model are based on four key elements: Value, architecture of how an organization works, architecture of what a firm is doing and the financial aspects. Based on this structure the building blocks of the Business Model Canvas are outlined.

Key Element: Value proposition

Value proposition

As mentioned by Osterwalder (2004) the value proposition building block is the center of the canvas. The Value Proposition is designed to serve customers. If the value proposition is not meeting the customer needs, a company will not survive for long, which makes the customer the most important factor to a company. The development of the value proposition must be done very carefully and must contain the value creating products and services for a customer. This is defined as 'The Value Proposition bundles products and services that create value for a specific Customer Segment' (Osterwalder & Pigneur, 2010, p. 22). The value proposition is the offer which complements a customer need or problem of

a specific customer segment. Examples of value offers including; cost reductions, risk reduction, price and (better) performance (Osterwalder & Pigneur, 2010).

Key Element: Architecture of the relation between the firm and its exchange partners

Customer segment

As mentioned in the definition of Value Proposition, the value proposition is designed for a specific Customer Segment. Which is defined as: '...different groups of people or organizations an organization aims to reach and serve' (Osterwalder & Pigneur, 2010, p. 20). Without customers a business will not exist. A company must be aware of what the customers want. To make a bundle of products, it is important to have a customer segment, because it is a group of customers with similar needs to which a value proposition can be attributed. If the customer segment is ill or too broad defined, the business model will have a vague or too broad value proposition and thus it will not be recognized as valuable. To make a customer segment, a decision in size, variety and type of customers must be made. Next to the typologies of the different segments, segments can be identified or made by adjusting types of relationships with customers, particular distribution channels and different revenue structures. By adjusting characteristics to a particular type of customers, a segment can be created. The customer need of a particular segment must be aligned with the value proposition to design a viable business model. The value proposition must be communicated to get alignment with the specific customer need and must be delivered to the customer segment (Osterwalder & Pigneur, 2010).

Channels and Customer relationship

To communicate and deliver the value proposition Osterwalder and Pigneur (2010) use Channels and 'Customer Relationships' in the Business Model Canvas. The building block Channels is defined as '... how a company communicates with and reaches its Customer Segment to deliver a Value Proposition' (Osterwalder & Pigneur, 2010, p. 26). In this channel, the way of communication, sales strategy and distribution must be adjusted to create a good customer awareness about the proposed value. Next to the awareness the Channels are responsible for guidance of the proposed value to the customers (Osterwalder & Pigneur, 2010). For example, by providing support with the delivered value to realize the maximum value potential of the delivered value.

Next to the building block Channels, the building block 'Customer Relationships' is also a link between the value proposition and customer segment. These relationships describe the way the customers are connected to a company. The aim of this relationship is to sell more products or services by improving customer loyalty and finding and introducing new customers. An example in Osterwalder and Pigneur (2010) of a community is the introduction of a weight-loss medicine of GSK. They created an online community to learn about the problem of their customers and adapt better to the customer needs. Another example of customer relationships is personal assistance. This is a personal approach in the sales process where a salesman accompanies the whole sales

process from first interest in the company value proposition to the after sales and the end of the purchasing process. To conclude, Customer relationships are defined as 'the types of relationships a company establishes with specific Customer Segments' (Osterwalder & Pigneur, 2010, p. 28).

Key Partners

Network activity in the canvas has an important place, because a company does not have all the resources and activities in-house to create the value proposition by itself. Therefore 'Key Partners' are needed. This building block is '...the network of suppliers and partners that make the business model work' (Osterwalder & Pigneur, 2010, p. 38). This network of suppliers and partners may lead to risk reduction, cost reduction, or resources which are hard to acquire (Osterwalder & Pigneur, 2010). The building block key partners is essential for the value creation in business models because the network partners complement the firm resources (Zott et al., 2010). However, next to the complementation of the firm resources, the business model can create value for the partner. Because total value creation of a business model does, next to the customers, also including partners and suppliers (Brandenburger & Stuart, 1996).

Key Element: architecture of what a firm is doing

Key resources and Key activities

In the BMC, the building block 'Key Resources' is defined as '..describes the most important assets required to make a business model work' (Osterwalder & Pigneur, 2010, p. 34). As stated by (Barney, 1991), resources are essential for sustainable competitiveness. Resources are needed to create, communicate and deliver the value proposition. So for every business, different resources are needed. Resources can be physical, such as a commodity but can also be intellectual, such as knowledge or experience. Other types of resources are financial and human resources (Osterwalder & Pigneur, 2010). An addition is needed on this Resource Based View, because resources alone are not sufficient for running a business. By adding different activities and heterogeneous mental models they create the value of a company (Foss et al., 2008). This is described as 'Key Activities' which is 'the most important things a company must do to make its business model work' (Osterwalder & Pigneur, 2010, p. 37). Activities of companies to create value are production, problem solving and network activities (Osterwalder & Pigneur, 2010).

Key Element: Financial aspects

Revenue stream and Cost structure

The introduced building blocks; value proposition, customer segment, channels and customer relationships are all about delivering value to a particular customer. In commercial businesses the aim is to make profit which is to create more revenues than cost. In the BMC this is conceptualized in the building block Revenue Streams and captures the value delivered on the right side of the canvas. The revenue streams '...represent the cash a company generates from

each Customer Segment' (Osterwalder & Pigneur, 2010, p. 30). In this building block the pricing mechanisms must be chosen. The revenue stream is started by a transaction of value which is paid for with money.

The building blocks Key Resources, Key Activities and Key Partners are all for the creation and capturing value which is described in the value proposition (Osterwalder & Pigneur, 2010). These building blocks do not create revenues, they need costs to create and deliver the value to the customers. In the BMC 'the Cost Structure describes all costs incurred to operate a business model' (Osterwalder & Pigneur, 2010, p. 40). This cost structure can be characterized depending on the business model as cost-driven, value-driven, fixed costs and variable costs. The revenues minus the costs lead to the earning of the company which represents the added value of a business model (Osterwalder & Pigneur, 2010).

Business Model Canvas and Strategy

Designing and visualizing a business model based on the BMC is one thing, but applying the business model to an organization is another important issue in making a successful company based on a business model. The application of a business model depends on the environmental factors of the firm. Analyzing and adapting to this environment is corporate strategy. Osterwalder and Pigneur (2010) give four ways of strategic perspective of business models; Business Model Environment, Evaluating Business Models, Business Model Perspective on Blue Ocean Strategy and Managing Multiple Business Models. These four perspectives can be seen as sequential steps to adjust the business model to the given environment and how to manage this. First, an analysis is needed in order to know what the environment of the business is and what the influences of this environment are on the business model. Examples of influences are: competitors, new technologies, or new customer needs. Environmental forces can be distinct into four different topics; market forces, industry forces, key trends and macroeconomic forces (Osterwalder & Pigneur, 2010, p. 200). By analyzing these environmental topics, a good overview on the environment can be realized. This will help to anticipate on environmental changes, such as trends and new customer needs and scenarios about to what direction a business model may evolve. With the obvious remarks that the environmental future cannot be predicted because of uncertainty, complexity and unforeseen events. When a business model is designed and adapted to the environment, the business model will not be a static model. A business model needs to be constantly evaluated if the total model is to fit the environment, so the individual building blocks need to be up-to-date (Osterwalder & Pigneur, 2010).

As mentioned in Osterwalder and Pigneur (2010), decisions must be made based on three variables; severity of conflict, strategic similarity and risk for the existing business. The decision to integrate or to separate an innovative business model is not a decision which must be considered as permanent. Over time decisions to integrate or to separate can be adjusted. Management is a key

factor in implementing successful business models in an existing organization, the initial decision will have a big influence on the success of the implementation but the adjustment over time and evaluating the development of the business model is of vital importance (Osterwalder & Pigneur, 2010)

Business modeling process based on the Business Model Canvas

All different aspects of the Business Model Canvas are now outlined. The nine building blocks and strategic and management aspects are described. This gives a good overview of what the BMC is and what it does. The next essential part is how to guide the design process of a business model. There is not just one way to design a business model, because of different characteristics of companies and environmental situations (Osterwalder & Pigneur, 2010). The process of designing is based on five steps. The steps are; (1) mobilization of awareness and motivation to make a new business model, (2) understanding of the technology, customers and environment, (3) designing and selecting of several business model configurations, (4) implementation of the chosen business model and (5) managing the business model based on evaluating the responses to the business model and eventually adapting to environmental changes (Osterwalder & Pigneur, 2010). Furthermore, the Business Model Canvas is more than a checklist of what has to be included in a business model. It is the first step to make a story out of the business model. This story consists of the nine building blocks in combination with the relationships between the different building blocks (Osterwalder & Pigneur, 2010). All these steps have their own challenges and approaches, which are based on existing knowledge and literature about those specific topics. For now they are not taken into account in this thesis.

2.3.3 Business Model Canvas compared with alternatives

In the academic field as well as in business practice, different business model tools were developed in the last decade. Some of the latest are 'Lean Canvas', 'The fluidminds' business model canvas', 'Plan Cruncher', 'IBM's components business modeling', 'The Value Model' and 'Business Model Canvas'.

Alternative business model tools

To get an overview for investigated alternatives a table with content is provided, including a thumbnail of the tool. In Appendix 1 a bigger visual is attached. The alternative business model tools are analyzed based on theory description earlier in Chapter 2 and compared with the Business Model Canvas. The structure of the analysis is based on the concluded dimensions of the business models in paragraph 2.1.3: Value proposition, architecture of the relation between the firm and its exchange partners, architecture of what a firm is doing and financial aspects.

Name:	Lean Canvas
Creator:	Ash Maurya (2010)
Origin:	Based on Business Model Canvas (adaptation)
Source:	http://leanstack.com/

Visual:



Lean Canvas is adapted from The Business Model Canvas (<http://www.businessmodelgeneration.com>) and is licensed under the Creative Commons Attribution-Share Alike 3.0 Unported License.

Appendix 3 for full figure

Description: The Lean Canvas is an adjusted version of the BMC, because the creator finds some of the building blocks too general. Criticism is given at the lack of product/market fit in the BMC, more focus on activities and not specified in detailed resources and partnering. And the addition of unfair advantage to diminish harm of competitors or imitators. The main objective of the Lean Canvas is to be 'actionable' and 'entrepreneur-focused'¹.

Value: The value proposition is extended by 'Unfair advantage', which is 'Something that cannot be copied or bought' (Cohen)². This building block is aiming at protection against the competitions and potential imitators of the business model. In this building block the reason of being uniquely different must be described, this can be a resource¹.

Architecture of relation: The building block Key Partners is removed. According to the creator this was the toughest one to remove, because you might need a partner in some cases. However, in general business model do not need key partners¹. Furthermore, the 'path to customers' and Customer relationship can be merged to one building block Channels to reach the customer segment¹.

Architecture of what a firm is doing: More emphasis in the Lean Canvas is on the product/market fit. For example the addition of building blocks: 'Problem' which implies a better problem understanding and will result in less waste of resources and more focus on a good product, 'Solution' which is proposing a solution with features based on the problem and 'Key metrics' which focus is on key actions to create revenue from the right resources³.

Financial aspects: Not specifically mentioned in the tool.

Table 2: Lean Canvas

Name:	Fluidminds Business Model Canvas
Creator:	Fluidminds
Origin:	Based on the notion of Value
Source:	http://www.fluidminds.ch/

¹ <http://practicetrumpstheory.com/2012/02/why-lean-canvas/>

² <http://practicetrumpstheory.com/2010/08/businessmodelcanvas/>

³ <http://practicetrumpstheory.com/2012/02/why-lean-canvas/>

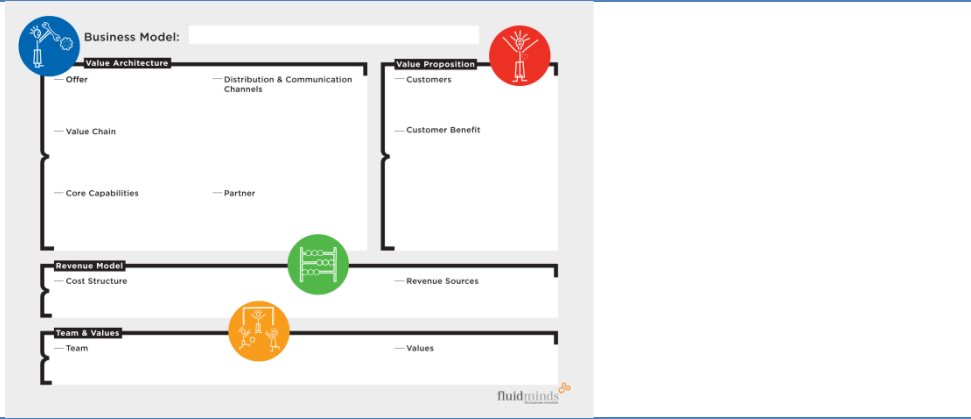
<p>Icon:</p> <p>See attachments for full picture.</p>	 <p>The diagram illustrates the Fluidminds Business Model Canvas, which is a structured framework for business model innovation. It is divided into four main horizontal sections, each with a corresponding icon:</p> <ul style="list-style-type: none"> Value Architecture (top left, blue icon): Includes Offer, Value Chain, and Core Capabilities. Value Proposition (top right, red icon): Includes Customers and Customer Benefit. Revenue Model (middle, green icon): Includes Cost Structure and Revenue Sources. Team & Values (bottom, orange icon): Includes Team and Values. <p>Additional elements include 'Distribution & Communication Channels' and 'Partner' connecting the Value Architecture and Value Proposition sections. The Fluidminds logo is located in the bottom right corner of the diagram.</p>
<p>Description:</p>	<p>As in the BMC the concept of value is central. However, in the Fluidmind model there is even more emphasis on value. In every building block except for the 'Revenue Model' value is the foundation. For every building block there is a need to explore the value points, in order to get the best business model⁴. An addition to the BMC is the value of teams and the interaction within the team. This addition adds the concept of human resource to succeed a business model innovation, next to the human resource as 'Key resource'.</p>
<p>Value:</p>	<p>The value proposition is the center of this business model tool. But compared to the BMC the value proposition needs to explicate the value in the different parts of the business model⁴. By doing so, a more elaborate value proposition can be provided. Emphasis in the building block is on 'Customers' and 'Customer Benefit'⁵ and not for example on product.</p>
<p>Architecture of relation:</p>	<p>The architecture of relation is in the Fluidminds business model canvas merged with the architecture of what a firm is doing. The emphasis is more on value then in the BMC. Furthermore, the relation between designers of a business model is added to the canvas. It emphasizes on the structure of the team and what the competencies and values are⁴.</p>
<p>Architecture of what a firm is doing:</p>	<p>The architecture of what a firm is doing is structured around the creation and delivery of value. This building block concerns the 'Value Architecture' which is 'clarifying the offer, the value chain, the need for identifying core capabilities, for explaining the distribution and communication channels and the (potential partners)⁴. In this part of the business model tool, all the building blocks are focused on value in contrary to the Business Model Canvas in which for example the distribution and communication channels are not focused on value.</p>
<p>Financial aspects:</p>	<p>Not specifically mentioned in the tool.</p>

Table 3: Fluidminds Business Model Canvas

⁴ <http://blog.business-model-innovation.com/2013/07/knowning-the-value-within-your-business-model-is-vital/>

Name:	IBM's Component Business Modeling (CBM)
Creator:	IBM Business Consulting Services (2009)
Origin:	Business functionality
Source:	http://www-935.ibm.com/services/us/gbs/bus/pdf/g510-6163-cbm-making-special-real.pdf
Visual:	<p>The diagram, titled 'The Component Business Model', is a 3x7 grid. The columns represent business competencies: Business Administration, New Business Development, Relationship Management, Servicing and Sales, Product Fulfillment, and Financial Control and Accounting. The rows represent operational levels: Direct, Control, and Executive. Each cell contains a specific business component. Some cells are highlighted in green (Sales Planning, Product Fulfillment) and one in red (Staff Appraisals). A large 'Credit Administration' block spans the bottom-right quadrant of the grid.</p>
Description:	<p>The IBM's CBM is a business model tool to make an overview of what a business is doing. It is based on a functional matrix of 'Business Competencies' and on 'Operational Level'⁶. The building blocks in the CBM are business components which are autonomic components of the business. The building blocks competencies include resources, technology and know-how⁷. In contrary to the BMC the CBM is not a business model tool which results in a business architecture. The CBM is a functionally focused tool around resources and technology. It does not focus on value. The boundaries of the components are administrative, interdependencies between the building blocks are not clear⁸.</p>
Value:	<p>The IBM CBM is focused on technology, resources and know how⁹. There is no value proposition provided in this business model tool. The value is an end result of an individual building block but is not mentioned in the building block.</p>
Architecture of relation:	<p>How a relation is managed is based on functional and is restricted to competencies such as 'Relationship management', 'Credit Assessments' and 'Credit Administration'.¹⁰</p>
Architecture of what a firm is	<p>The architecture of what a firm is doing is the foundation of this business model tool. In every building block competencies of the building block are described. In every building block the</p>

⁶ <https://www.research.ibm.com/haifa/projects/software/cbm/index.html>

⁷ <http://www.informatik.uni-jena.de/dbis/veranstaltungen/datenbanktage-2004/Doblaski,%20Lutz.ppt>

⁸ http://www.ebizq.net/blogs/service_oriented/2010/01/business_architecture_and_ibm_component_business_model.php

⁹ <https://www.research.ibm.com/haifa/projects/software/cbm/index.html>

¹⁰ http://www.michael-richardson.com/rup_classic/extend.bus_model/guidances/concepts/business_component_modeling_527F8FC0.html

doing:	organizational aspect, the functions which perform and the technology is provided ¹¹ .
Financial aspects:	Not specifically mentioned in the tool.

Table 4: IBM's Component Business Modeling

Name:	The Value Model Canvas (VMC)
Creator:	Jeroen Kraaijenbrink
Origin:	Business Model Canvas
Source:	http://kraaijenbrink.com
Visual:	<p>The diagram illustrates the Value Model Canvas (VMC) as a trapezoidal shape. At the top, 'Key partners' is on the left and 'Key rivals' is on the right. The top center is labeled 'Strategic values'. Below this, the canvas is divided into two main sections: 'Costs' on the left and 'Revenues' on the right. At the bottom, there are three distinct blocks: 'Key competences' on the left, 'Value proposition' in the center, and 'Key customers' on the right. The entire structure is enclosed in a blue border.</p>
Description:	The Value Model Canvas (VMC) is an alternative version to improve the Business Model Canvas by addressing limitations of strategic purposes, competition and levels of abstraction of the Business Model Canvas ¹² . The VMC is not just adding missing parts to the BMC. In the VMC essential building blocks are added and less essential building blocks are combined or deleted ¹³ .
Value:	The value in the VMC is, as in the BMC, the center of the canvas. However, value has a more prominent role in the VMC. A significant change is the name of the canvas to Value Model Canvas. The focus of the BMC is on profit generating businesses, which excludes non-profit organizations. By changing the name, the key purpose of an organization is changed into value creation instead of profit alone ¹³ . Furthermore, based on the exclusion of strategic purpose in the BMC, the building block Strategic Value is added. This building

¹¹ http://www.michael-richardson.com/rup_classic/extend.bus_model/guidances/concepts/business_component_modeling_527F8FC0.html

¹² <http://kraaijenbrink.com/2012/07/the-value-model-canvas/#>

¹³ <http://kraaijenbrink.com/2012/07/shortcomings-of-the-business-model-canvas/>

	block consists of the strategic purposes, mission and vision of an organization. Which result in alignment between the business model and different goals of a business, so included non-for profit organization ¹⁴ . Furthermore, the position of the Strategic Value building block is on top of the financial model. It emphasizes the contribution of the financial model on accomplishing the strategic values ¹⁵ .
Architecture of relation:	The BMC is internally focused and is ignoring external forces such as competition. However, the competition has a big impact on other building blocks ¹⁶ . In the VMC competition is included through an extra building block Key Rivals ¹⁷ . This results in more emphasis on competitors which may result in, for example, an improved value proposition. This adapts to the obstruction in achieving Strategic Values by Key Rivals ¹⁸ . Furthermore, the building block Key Partners is redefined into partners to accomplish the Strategic Values ¹⁹ instead of partners to accomplish Key Resources and Key Activities.
Architecture of what a firm is doing:	A shortcoming which is identified is the mix of levels of abstraction of the BMC ²⁰ . In the VMC the 'Key resources and Key activities' and the 'Customer relationship and Channels' are too detailed compared to the other building blocks which are on a higher abstraction level. Therefore these building blocks are merged into 'Key competences' and 'Key customers' ²¹ .
Financial aspects:	Not specifically mentioned in the tool.

Table 5: The Value Model

2.4 Conclusion strengths and limitations of the Business Model Canvas based on literature

Based on the outlined literature about the concept business model and the concept business model tool in combination with the comparison of the Business Model Canvas with other business model tools, the sub-question: 'What are the strengths and limitations of the Business Model Canvas based on academic literature and alternative business models?' can be answered.

2.4.1 Strengths and limitations based on academic literature

As constructed in this chapter, the purpose of a business model as mediator between a technology or idea and potential customers implies a method to capture and deliver value to a customer. The Business Model Canvas is stimulating thought about capturing and delivering value. The purpose of the Business Model Canvas is aligned with the theory. Furthermore, a business

¹⁴ <http://kraaijenbrink.com/2012/07/shortcomings-of-the-business-model-canvas/>

¹⁵ <http://kraaijenbrink.com/2012/07/the-value-model-canvas/#>

¹⁶ <http://kraaijenbrink.com/2012/07/shortcomings-of-the-business-model-canvas/>

¹⁷ <http://kraaijenbrink.com/2012/07/the-value-model-canvas/#>

¹⁸ <http://kraaijenbrink.com/2012/07/the-value-model-canvas/#>

¹⁹ <http://kraaijenbrink.com/2012/07/the-value-model-canvas/#>

²⁰ <http://kraaijenbrink.com/2012/07/shortcomings-of-the-business-model-canvas/>

²¹ <http://kraaijenbrink.com/2012/07/the-value-model-canvas/#>

model is constructed based on four key elements: Value proposition, architecture of the relation between the firm and its exchange partners, architecture of what a firm is doing and financial aspects. This is also aligned with different theories. However, with combining strategy with business models, a limitation can be found in the Business Model Canvas. In the theoretical description of the BMC, the combination with strategy examples is given about potential threats to the business model and how to cope with it, but little value is accounted to strategy included in a business model because it is not taken into consideration in the canvas. However in another theory, strategy and business models are seen as being highly related, since the value of the value creation mechanism is based on a competitive advantage on competition (Brandenburger & Stuart, 1996). The way of coping with competition makes the difference in achieving success, in terms of superior performance in respect to the competitors (Magretta, 2002). Therefore, a theoretical limitation of the Business Model Canvas is the lack of incorporating strategy.

2.4.2 Strengths and limitations based on alternative business model tools

Based on the comparison between the Business Model Canvas with four alternative business model tools, strengths and limitations can be derived. The alternative business model tools used are Lean Canvas, Fluidminds Business Model Canvas, IBM's Component Business Modeling and The Value Model Canvas.

Based on the Lean Canvas, strengths of the BMC can be recognized in terms of the visual representation. The Lean Canvas has the same structure. Furthermore, the building blocks Channels, Customer Segments, Cost Structure and Revenue Streams are reused. However, the main limitations of the BMC based on the Lean Canvas are that it neglects competition or imitation. Therefore, the building block Unfair Advantage is created. This is an extension of the Value Proposition and is directed at Competitive Advantage. Furthermore, in contrary to the BMC the focus of the Lean Canvas is more on the market fit in terms of problems and the solutions and less on product. Therefore the building blocks Problems and Solution is added. Key Resources and Key Partners are sacrificed and combined in the building block Key Metrics. This results in a limitation of the BMC in terms of level of detail of the individual building blocks.

Based on the Fluidminds Business Model Canvas, strength can be recognized about the centrality of value. In the Fluidminds tool the way of capturing, communication and distribution is covered in the building block Value Architecture. In this tool the value is even more central than in the BMC. More limitations of the BMC can be derived. In the Fluidminds tool the building block Team and Values is added, this implies that the human resource and interaction in teams is necessary to succeed in business model innovation.

The Components Business Model of IBM is a functional matrix which is focused on the operational level of the organization. In this tool, as opposed to the BMC, the distinction is made between different departments and the detailed execution

of an idea, where the BMC is more focused on abstract execution of an idea in terms of value creation, value capturing and value delivery.

The last alternative tool analyzed is the Value Model Canvas (VMC). The VMC is an improvement of the limitations of the BMC. Strategic purposes and competition are an addition to the limitations of the BMC. Another limitation is the different level of abstraction of the individual building blocks, which is solved in the VMC. The exclusion of strategic purposes in the BMC leads to the narrow focus to profit making organizations. Non-profit organizations and governmental organizations are neglected. Therefore the focus should be on strategic purposes, mission and vision. This gives the ability to cover all types of organizations. Next to this limitation of the BMC, the limitation of the exclusion of competition can be recognized based on the VMC. By adding the building block Key Rivals the Business Model is more harmed against external forces. Also, the business model designers are forced to think about the impact of competition on different building blocks, especially to the Strategic Values. A final limitation of the BMC is the different levels of abstraction; the building blocks Key Resources/Activities and Channels/Customer Relationship have a higher level of detail than other building blocks. In the VMC these building blocks are merged into Key Competencies respectively Key Customers. Finally based on the alternative business model tools can be concluded that on financial aspects no strengths and limitations can be recognized.

2.4.3 Conclusion

The comparison of different alternative business models results in several strengths and limitations. In Table 6 an overview is provided. Main strengths are the visual representation of the BMC, the centrality of value and the coverage of different dimensions of a business model. This is also outlined in the theoretical section. Limitations are directed at missing parts, such as a building block directed at competition, imitation and market forces. Another limitation is the different levels of detail between the individual building blocks, which may result in a more elaborate building block such as Key Activities and Key Resources compared to other equally important building blocks Key Partners. Another major limitation is about the narrow aim of an organization, which is profit generation, for non-profit purposes of an organization the BMC is hard to use. This limitation can be seen as a narrow strategic purpose.

Strengths:	Limitations:
Visual representation of the BMC.	The ignorance of external factors such as competitions, imitation and market.
The coverage of the different dimensions of a business model such as Channels, Customer Segments, Cost Structure and Revenue Streams.	The BMC is based on building blocks of different levels of abstraction. This results in more emphasis on building blocks such as Key Resources, Key activities, Channels and Customer Relationship.
The centrality of value.	Human, and team interaction is not

	taken into account. This may result in incomplete identification of the value creation.
	Another missing part is the strategic purposes, the mission and vision of a company, which implies that the focus is on profit generation and not on other strategic purposes such as non-profit purposes.

Table 6: Strengths and limitations based on alternative business model tools

3. Methodology

In this methodology section the methodology for answering the research question is described. The research goal is to find strengths and limitations of the Business Model Canvas. To answer the question: 'What are the strengths and limitations of the Business Model Canvas in the design and application phases of a new business model?' an exploratory research is needed.

The research design is introduced in the first section of this chapter, followed by an outline of the case selection, the data collection and the data analysis. In the last part of this chapter validity and reliability will be discussed. Furthermore, in this chapter the measurement instrument is described. The instrument is an interview based on criteria, which are outlined in this chapter.

3.1 Research Design

The research is about exploring strengths and limitations of the Business Model Canvas, which requires an exploratory research method to gather a better understanding of a relatively new research field (Babbie, 2010). The method is separated in two sections. First of all, an online review to analyze comments based on forums and online articles is conducted. Second, a multiple-case study is used to analyze different cases and the experience of the interviewee with the Business Model Canvas.

By combining the comparison of alternative business model tools, the results of the online review and multiple case method, a rich and reliable view on the strengths and limitations is provided. The research gives a reliable overview of the strengths and limitations of the Business Model Canvas. By using three research instruments, reliability of the results is improved because of triangulation. The different results of the measurement instruments complement and correct each other and thereby improve limitations and biases of the individual measurements instruments (Aken, Berends, & Bij, 2007).

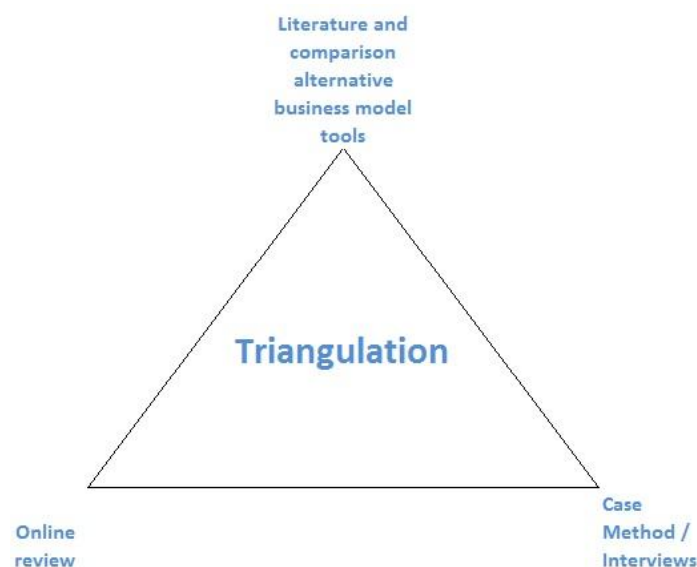


Figure 1: Triangulation

3.1.1 Online review

The search of online strengths and limitations is done through an extensive search of comments online. Sources of these comments are websites, blogs and forums. The search started at starting point www.google.com with the search terms mentioned in Table 7. Based on these search terms, a lot of websites were of interest and relevance. Especially www.businessmodelhub.com provided a great source of information.

Search terms for online review	
Business Model Tools	Business Model Canvas
Business Model Alternatives	Business Model Canvas Alternatives
Business Model Limitations	Business Model Canvas Limitations
Business Model Shortcomings	Business Model Canvas Shortcomings
Business Model Critics	Business Model Canvas Critics
Business Model Weaknesses	Business Model Canvas Weaknesses

Table 7: Search terms for online review

The online articles and discussion threads are analyzed on strengths and limitations which have a direct link with the Business Model Canvas and are described per strength and limitation. The search is partly based on systematically searching and reading websites on the search terms and partly based on a snowball effect. In some discussion threads or articles, references are given which are followed and read.

3.1.2 Multiple-case study

The methodological design of multiple case studies is focusing on a dynamic phenomenon within a single setting (Eisenhardt, 1989; Yin, 1981). By using the case study approach the method examines an occurring phenomenon in a real-life context (Yin, 1981) and describes an occurring phenomenon extensively (Siggelkow, 2007). According to Eisenhardt (1989) this method is suitable for theory building or to find cross-observational findings and leads to insights beyond and between individual cases and is not applicable for testing of hypotheses, because of the less accurate capacity (Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Woodside & Wilson, 2003).

According to Dyer and Wilkins (1991) a single case study is better than multiple case studies. The reason is that there is more high-quality theory that is derived from single case studies than from multiple case studies (Dyer & Wilkins, 1991). However, this statement is rejected by Flyvbjerg (2006) who argues that there are useful theories based on multiple case studies (Flyvbjerg, 2006). By aiming at multiple case studies in contrast to single case studies, causal paths and patterns can be observed and compared in different circumstances and settings (Eisenhardt & Graebner, 2007). In contrast to a single case which aims at the role of a construct in a specific setting (Dyer & Wilkins, 1991).

Pressure for quantification of multiple case study research can blur the usefulness of case studies (Simons, 1996). Because by quantification of the

multiple case study lead to loss of important information between findings in different cases. Details may loss during the process of summarizing the findings (Simons, 1996) and may lead to loss of cross-case findings (Eisenhardt, 1989). Therefore a qualitative approach is adopted. The results of the data collection of the multiple case studies can be transcribed as a series of answers to open ended questions, which lead to a storytelling text which is easy to read (Yin, 1981, p. 64). According to Eisenhardt (1989) this method is based on an underlying logic of replication, which means that, in this thesis, the strengths and limitations are improved and sharpened constantly. Furthermore, improvement of the validity of the new insights will be based on confirmation of the insights in other interviews (Yin, 1981). Disconfirmation of the insight often provide an extension or improvement of the theory (Eisenhardt, 1989).

For this research the aim is at different organizations which have applied or are currently applying the BMC. In more practical terms, interviews are conducted with six users of the BMC in different types of organizations to extract experiences with the BMC. During the interview the Business Model Canvas is analyzed on experience in the interviewees' organization, where the business model is analyzed on validity, reliability and controllability based on the criteria discussed in previous chapter.

3.1.1 Case selection and sampling:

As described in the previous paragraph different cases are needed to find and confirm strong points and limitations of the Business Model Canvas. These strengths and limitations of the BMC appear when the tool is applied in cases. Therefore the unit of analysis used to gather data is: 'cases in organization which use or have used the Business Model Canvas'. To collect the data, business practitioners with experience with Business Model Canvas are used as unit of observation.

In case study research there is often a bias to successful projects (McDermott & O'Connor, 2002). Therefore cases are selected which are finished or in progress. This leads to a more reliable result because cases in progress may fail. To gain external validity, a diffuse set of cases is needed. The sample must contain cases from different industries, years in present position and years of working experience.

Case:	Industry:	Years in present position:	Years of working experience:
1	Civil engineering	10	35
2	Sustainability	3	3
3	Innovation management	5	24
4	It integrator	1	13
5	Sustainability	0,5	6

6	Civil engineering	1	8
----------	-------------------	---	---

Table 8: Meta details of cases

The sample is based on the criteria: 'businesses of which on beforehand was clear they use the Business Model Canvas'. To have a broader sample more cases are selected on the sampling method Snowball Sampling (Babbie, 2010). This sampling method is also known as referral sampling and is often used in qualitative, explorative and descriptive research, in which the data collection is done through interviews (Biernacki & Waldorf, 1981). Snowball sampling method is not a conventional way of sampling, in which randomization is a criterion, but is a sampling method to reach a target population (Atkinson & Flint, 2001). BMC users are one of these specific target populations.

The Snowball Sampling will be in practical terms: the participants in this research are asked whether in their network people exist with experience in using the Business Model Canvas.

3.1.2 Data collection and interview protocol:

The data collected through interviews is based on criteria which are outlined later on in this chapter. The criteria are translated to questions which are organized in an interview protocol. The data collection method in multiple case methods has some theoretical implications.

There is an overlap of data collection and data analysis in multiple case studies. To take advantage of the overlap of data, researchers need to have a flexible data collection (Eisenhardt, 1989). This may give researchers a lead into the findings. According to Eisenhardt (1989) taking field notes can help in this overlap, these field notes are commentaries of what is happening during the interview. In other words are potential findings which are of interest for the research. This may lead to biased results of information collected of interviewees, because of retrospective analysis of meaning (Merriam, 2002). According to Merriam (2002) the data of the cases must be systematically recorded, explained and described in a holistic way. Yin (1981) indicates that narratives must be collected based on organized question.

In practical terms, the data collection is based on in-depth interviews where open-ended questions are asked to experienced users with working with the BMC. With room for flexibility (Eisenhardt, 1989) but in essence based on organized questions (Yin, 1981). The flexibility implies that there is room to ask more in-depth or broader questions of the topic under investigation. During the interview notes will be taken and the whole interview will be recorded.

The data collection will be based on a standardized protocol with standardized questions based on criteria that will be described later on in this chapter. This protocol is summarized in Table 7. The full protocol can be found in Appendix 2.

Interview protocol	
1.	Introduction of Bastian Coes and the thesis
2.	Introduction of interviewee background and company
3.	Optional: Doing a small design case based on the BMC of the visiting organization
4.	Questions regarding the business model tool in the organization
5.	Further comments interesting for thesis and summary
6.	End of interview

Table 9: Interview protocol

To structure the interviews, a protocol (Appendix 2) is designed based on defined criteria of the literature study in Chapter 2. These interviews are conducted with six experts. The interview protocol is designed based on a logical line of questioning. The data gathered through the interview will be transcribed and structured. The data gathered is confidential and interviewees need to confirm the data in the transcript for reliability and validity.

3.1.3 Data analysis:

Data analysis is conducted through the analysis of the interviews results, focused on examples and experiences given by the interviewees. These have to be grouped around comparable outcomes of strengths and limitations from the interviews. As mentioned by Yin (1981), in multiple case study research, researchers should not try to code everything, but they should focus on relevant information. A potential source of biased results noted by Eisenhardt (1989) and Flynn, Sakakibara, Schroeder, Bates, and Flynn (1990) is the semi-open structure of the interview. This potentially can result in a broad and rich view on a particular case and give new insights for theory building but will give room for different interpretations and directions in an interview.

The coding will be performed based on a narrative approach. As mentioned by Yin (1981) case studies can be coded as a series of answers to open ended questions, which lead a storytelling text which is easy to read (Yin, 1981, p. 64). Per question the narratives will be described. Between different cases the stories will be compared on agreement and disagreement. This cross-case comparison will be described in the result section. In the results, the context of the single cases will be taken into account (Yin, 1981).

3.2 Criteria for analyzing business model tools

Based on the theoretical framework and on already identified strengths and limitations, criteria are formed and they are checked on relevance in the online comments on the business model canvas. To group the criteria, the criteria of research are used. These are validity, reliability and controllability (Babbie, 2010; Gerring, 2012; Van Aken & Andriessen, 2011) and they are the most important quality criteria for case study research (Swanborn, 1996a; Yin, 2003). These criteria are required to reach inter-subjective agreement, which is the consensus between the research results and the research problem (Aken et al., 2007).

3.2.1 Validity

The first criterion for good research is validity. Validity is the justification of the way the data in the research is generated (Swanborn, 1996a). When discussing validity there are four important types of validity: construct validity, internal validity, external validity and pragmatic validity (Van Aken & Andriessen, 2011).

The construct validity is about if the instrument measures what it should measure (Aken et al., 2007). In other words does the tool what it should do. Internal validity in assessing the business model tool is about if the relationships of the tool are justified and complete (Aken et al., 2007). Applied in this research internal validity measures if the relationship between the tool and sub-characteristics match and if they are complete.

External validity is about the generalizability of results to other situations (Aken et al., 2007). In this research the external validity measures if the business model outcome is generalizable in the organization, between organizations and if the business model tool can be combined with other tools. This is an important criterion because it measures if the outcome, a business model, can be applied to the organization.

Final validity point is pragmatic validity. In other words, it is the recognition of the results (Aken et al., 2007). The sub-characteristics point at if the result of the business model tool is beneficial to the organization and if they attribute success of the organization to the use of the business model tool.

3.2.2 Reliability

The second criterion of analyzing business model tools is reliability. A research is reliable when the results are independent and if the results of the research can be replicated in other research with other characteristics (Swanborn, 1996a; Yin, 2003). To analyze the business model tool the internal consistency and stability of outcome is of relevance. Therefore sub-criteria and sub-questions are aimed at if the result is stable in time and if the result is replicable.

3.2.3 Controllability

The third criterion of analyzing business model is controllability, which is the precondition of validity and reliability (Aken et al., 2007). Controllability in the analysis of the business model tool is about that if the decisions and assumptions during the process of designing the business model are controllable afterwards. In other terms, is the administration of decisions and assumption for designing a business model is documented.

In following table the criteria are given. In appendix 3 the criteria are provided with higher detail.

Criteria:	Sub criteria:	Sub-characteristic:
Validity	Construct validity	Value proposition
		Customer segment
		Channels (distribution)
		Customer relations
		Profit potential
		Competitive strategy
		Technological innovation
		Business model innovations
		Cost structure
		Resources
		Activities
		Partnerships
		Customer participation
	Internal validity	Easy to understand
		Visual representation
		Easy to operate
		Completeness
		Creativity
		Organizational alignment
	External validity	Communicatability
		Architecture of the organization
		Combination with other tools
	Pragmatic validity	Success of the organization
		Continuity
		Financial calculations

Table 10: Criterion validity

Criteria:	Sub criteria:	Sub-characteristic:
Reliability	Internal consistency and stability	Level of development of a business model in the organization
		Impact of the business model tool in the organization
Controllability	Evaluation	Validity and reliability for inter-subjective agreement

Table 11: Criteria reliability and controllability

3.3 Research validity and reliability

Validity and reliability are important in two ways for this master thesis. First, to analyze the business model tool validity, reliability and controllability are used as criteria. Second, research validity and research reliability. The validity and reliability issues are discussed in the Chapter 6. However, methodologically an improvement to reliability is used, which is useful to mention in the methodological section.

To gain validity, at the end of every the interview questions regarding the execution of the interview are asked. As can be seen in Table 10, the interviews are conducted without major problems and without major misunderstanding about questions and notions. Next to this validity and reliability check, the interviewees received the results and read what they have stated, based on this check several questions or adjustments were made. These are included in the data which is outlined above.

Interviewee:	1	2	3	4	5	6
Do you have other comments, critics or positive points of the business model tool?	No	No	No	No	No	No
Were the questions and discussions in this interview clear to you?	Yes	Yes	Yes	Yes	Some questions where difficult. For example about competitive strategy. But this was not harming the interview.	Yes
Where all topics clear to you? If not, which one was not clear?	Yes	Yes	Yes	Yes	Yes	Yes
Did any problems occur during the interview? If yes, which problems and at what question?)	Yes, at business model innovation. It is not about knowledge of the definition but we do not use it in the organization.	No	No	No	A bit too much noise.	No

Table 12: Research validity and reliability

4. Online review

Based on the theoretical framework outlined in Chapter 2, an extensive overview is provided about what business models and business model tools are. To have an extended overview of what is of importance in the discussion of the strengths and limitations of Business Model Canvas an online review is conducted to answer the second sub-research question: 'What are the strengths and limitations of the Business Model Canvas based on online discussion?'

4.1 Online review on Business Model Canvas

The online review discussion on Business Model Canvas is grouped in discussions based on elements of the dimensions of a business model: Value, architecture of the relation between the firm and its exchange partners, architecture of what a firm is doing and financial aspects, and a general topic for strengths and limitations which cannot be covered by the four elements.

As outlined in the methodology section, strengths and limitations are searched on partly a systematic search of terms and partly on a snowball effect when reading articles or discussions threads based on the search items. One example is LinkedIn.com, in discussion groups a lot of references are given to articles and other discussions threads. In Table 13 the main websites are provided where the online analysis is based on.

Websites
http://businessmodelhub.com
http://kraaijenbrink.com
http://www.informing-arts.biz
http://canvanizer.com
http://businessmodelalchemist.com
http://www.sepatterns.com
http://bringinnovation.wordpress.com
http://linkedin.com
http://marketingfacts.nl
http://businessmodelgeneration.com
http://practicetrumpstheory.com/
http://michael-richardson.com/
http://blog.business-model-innovation.com
http://leanstack.com/

Table 13: Sources of online strengths and limitations of the BMC

4.2.1 Value

Public services, not- for profit organizations and social value

In a discussion on Businessmodelhub.com, Alastair Jarvis is starting a topic about social entrepreneurship. The question is if anyone has experience with modeling social enterprises with the BMC²². To specify the subject: more social

²² <http://businessmodelhub.com/forum/topics/how-are-social-entrepreneurs-using-the-business-model-canvas-when>

enterprises are different from 'normal' businesses in terms of decision making. In a social enterprise, decision making is based on the social mission, instead of decisions based around profit-seeking²³. In reply of the aforementioned question a limitation of the Business Model Canvas towards Social Enterprises is the alignment of the Value Proposition with the customers. A redefinition is needed of the value proposition to adapt for Social Enterprises. Furthermore, in line with the foregoing limitation is the building block Key Revenues. Because when the Social Enterprise is funded, the return should be transparent. In the Business Model Canvas the emphasis is on financial revenues. Therefore Social Enterprises cannot be designed in the BMC without adaption to the building blocks²⁴.

Another topic on the limitations and assumptions of the Business Model Canvas is started by Nuno Bolas. The social and environmental impact is not be used in terms of social value as an additional building block. But as strategic decisions, Jesus Sanchez proposes to extend the value proposition next to 'customer value' and 'economic value' with 'environmental and social value'²⁵. This limitation is partly supported by Dr. Rod King, that the Business Model Canvas is focusing on physical value and is ignoring intellectual-, social- and spiritual value²⁶.

Exclusion of strategic purposes

A limitation regarding strategic purposes of the Business Model Canvas is addressed by Kraaijenbrink in 2013. The Business Model Canvas is excluding strategic purposes, mission and vision. Strategic purposes such as purposes for the business, of the business, in the business and with the business are not covered²⁷. In other words, the Business Model Canvas is lacking the explicating of the primary goal of an organization other than making revenues. Organizations such as non-profit, social enterprises and governmental organizations are neglected²⁸. This limitation can be improved by adding a building block 'Strategic Value'²⁹. The strategic value addresses the organizational vision, mission and strategic purposes. In a reply to the discussion line of 'What are the shortcomings of the business model canvas', Dr. Rod King mentioned that value captures strongly relates to competitiveness and external factors. This is not taken into account in the Business Model Canvas. Therefore, the replier Dr. King adds an extra building block 'Business Model Environment'³⁰.

²³ <http://www.sepatterns.com/>

²⁴ <http://businessmodelhub.com/forum/topics/how-are-social-entrepreneurs-using-the-business-model-canvas-when>

²⁵ <http://businessmodelhub.com/forum/topics/limitations-and-assumptions-of-the-busines-model-canvas>

²⁶ <http://businessmodelhub.com/forum/topics/what-are-the-shortcomings-of-the-business-model-canvas>

²⁷ <http://kraaijenbrink.com/2012/06/the-strategic-purpose-framework/>

²⁸ <http://kraaijenbrink.com/2012/07/shortcomings-of-the-business-model-canvas/>

²⁹ <http://kraaijenbrink.com/2012/07/the-value-model-canvas/>

³⁰ <http://businessmodelhub.com/forum/topics/what-are-the-shortcomings-of-the-business-model-canvas>

4.2.2 Architecture of the relation between the firm and its exchange partners

Strategy for developing competing business models

Alexander Osterwalder is constantly developing improvements to the concept of Business Model Canvas. For example, on competing business model strategy, Osterwalder adds four levels of strategy for developing competing business models³¹. This will be described later.

First of all, the limitation of replier on Businessmodelhub.com, Mike Lloyd about the BMC is based around strategic models. It analyses and designs the combination of an organization with its strategy in terms of Unique Selling Propositions³². Lloyd's proposition is to include descriptions of: 'organizational capabilities', 'the process of each capability' and the 'description of platforms such as software or technology'³³ to take strategy into account. It is not clear if there is any link between the limitation of Lloyd and the reaction on this limitation of following article of Osterwalder.

In the article "Drop you training wheels: Competing on Business Models", Osterwalder introduces four levels of strategy for developing competing business models: Level 0 strategies are businesses which are only focusing on the Value Proposition and are not using all the BMC building blocks. This means they cannot distinguish themselves based on a business model. Osterwalder explains that this type of business is a training wheel for cycles, where you bike very fast but are not going forward. Level 1 strategies are business model users who develop a business model based on BMC as a checklist. They recognize that they need a good value proposition but also are aware of other building blocks in the BMC, which they describe but the interactions between the building blocks are not clear. Level 2 strategies are about the reinforcement of different business model blocks, the business model designers have a good understanding that a strong alignment is needed between the building blocks, so the building blocks reinforce each other. The business model becomes a story, which will, based on this reinforcement of building blocks, outperform the market. Level 3 strategy is about disrupting the companies own business model while they are successful. They disrupt themselves by innovating and introduce new business models. This may result in continuously outcompeting all other businesses, because a business does not get comfortable with their success but continuously improving their way of doing business³⁴.

³¹ <http://businessmodelalchemist.com/2012/03/drop-your-training-wheels-competing-on-business-models.html>

³² <http://businessmodelhub.com/forum/topics/limitations-and-assumptions-of-the-busines-model-canvas?id=2478825%3ATopic%3A75585&page=2#comments>

³³ <http://businessmodelhub.com/forum/topics/limitations-and-assumptions-of-the-busines-model-canvas?id=2478825%3ATopic%3A75585&page=2#comments>

³⁴ <http://businessmodelalchemist.com/2012/03/drop-your-training-wheels-competing-on-business-models.html>

Customers or partners in Business Model Canvas

In some business models, a participant in the business model delivers value and receives value at the same time. This gives room for interpretation differences and room for discussion if the participant of a business model must be subscribed to the building block Customer Segment or Key Partners. In a comment, one person mentioned that the definition of a partner relationship is based on shared economics, co-development, mutual success and a common customer. Another states that 'who is helping who?', is a good question. When a business solves a problem or does a job, there are customers. When you are helping a company to solve a problem or does a job for them based on your resources there are partner relationships. Or 'if your partner appreciates the same value proposition as your customer, then your partner is actually your customer'³⁵.

Environmental factors and competition and Business Model Canvas

Competition is not included in the Business Model Canvas. This should be included because the proposed value in a business model will be weighted and compared with value propositions of competitors. By taken competition into account when making a business model, potential misalignment with the market may be prevented. Competition has a big influence on the individual building blocks. A limitation of the Business Model Canvas is the exclusion of competition³⁶.

4.2.3 Architecture of what a firm is doing

Difficulties with making a story in Business Model Canvas

One online member of the online community Businessmodelhub.com mentioned that after filing in the BMC, this is still a checklist and not a story about a business, this business model developer needs a hint for making a story. In another discussion, a critical and tricky phase in business model developing is identified as making the story based on a checklist of the Business Model Canvas. Based on a master class given by Alexander Osterwalder, the starter of the discussion learned that successful businesses change the perspective from BMC as a checklist to BMC as a tool to identify all the interactions between different components in businesses. Based on the last perspective, companies need to innovate their business models and create a business model portfolio³⁷. One replier mentioned an expressive metaphor to explain why it is important to make a story about the interactions between the components and not only use the BMC as a checklist. The metaphor the writer of the comment once heard at a conference with Osterwalder and Pigneur: 'if you understand all the components from an airplane doesn't imply that you can fly it'³⁸.

³⁵ <http://businessmodelhub.com/forum/topics/confusion-in-business-model-canvas-customers-or-partners>

³⁶ <http://kraaijenbrink.com/2012/07/shortcomings-of-the-business-model-canvas/>

³⁷ <http://businessmodelhub.com/forum/topics/the-importance-of-story>

³⁸ <http://businessmodelhub.com/forum/topics/the-importance-of-story>

Execution of business model innovations

As a follow up of the previous paragraph about making a story, some comments and discussions are about the implementation of business model innovation. In the book and in the canvas there is minimal attention on how to execute the business models and what are important do's and what are don'ts. In reaction to one question Alexander Osterwalder mentioned that the topic of execution is a very big topic and is partly missing in the Business Model Generation book. The main goal is to get better understanding in innovating business models, implementation is always been a success or failure factor and this might be a topic for a next book³⁹. According to Nuno Bolas the BMC is directed at start ups and not at existing business models. This is contradicted by two respondents, who attribute strength to the BMC because it provides clarity by structuring the organization by the BMC⁴⁰.

Merger and acquisitions and Business Model Canvas

In a discussion topic on businessmodelhub.com, merger and acquisition scenarios are being discussed. It is not clear if and how to implement these scenarios into BMC. One poster suggests a post merger model, in which the vision of the two entities is created after the completion of the merger, by making use of the BMC for aligning different business models in previous independent companies. Another replier recognizes the BMC as a useful tool for become a winner or loser, because with the BMC the business model can be easily defined and communicated, so the developers can identify early on important issues for success. Another respondent adds to the discussion, that he uses the BMC for identifying areas where extra attention is needed during the pre- and post merger phases, especially the emphasis on value helps to identify the value proposition of the merger and will align all participants in the process⁴¹.

4.2.4 Financial aspects

Cash flow and invested capital in Business Model Canvas

A part of the business model canvas is about Key Resources. Capital investments are part of this building block. But as the discussion starter mentioned; do we need to include Cash Flow statements in our business model? Does it need a new block?⁴¹ In the replies on this question, all participants in the discussion agreed on the fact that capital investment is part in the Key Resources building block. But Cash Flow statement shouldn't be included in a business model because the business model is a strategic view of the fundamental design of a business and not an operational tool, which Cash Flow is. Another states that 'investment is needed to build the machine and cash flow is the one that is necessary to keep it moving'. To build further on this, operational finance is a next step in business model development. One suggests the use of BMSim, which is a simulation and

³⁹ <http://businessmodelhub.com/forum/topics/what-about-execution>

⁴⁰ <http://businessmodelhub.com/forum/topics/limitations-and-assumptions-of-the-business-model-canvas>

⁴¹ <http://businessmodelhub.com/forum/topics/business-models-in-the-ma-scenario>

testing tool for business models. This BMSim is based on a business model in which different scenarios are calculated in terms of financial performance. It is not a tool for one outcome but it is used to evaluate different decisions and input.⁴² In another discussion, one participant replies that it is needed to include the link value creation and return on invested capital in the BMC, because in his opinion this will facilitate financial innovation. But in reply to this comment the goal of BMC is to help business model developers to make creative linkage instead of economical modeling⁴³.

4.2.5 Other strengths and limitations

Levels of abstraction of the Business Model Canvas

The Business Model Canvas is based on nine building blocks. According to Kraaijenbrink in 2013, they are not of the same level of abstraction. These differences in detailed description of components in the Business Model Canvas result in an imbalance. The building blocks Key Activities and Key Resources and the building blocks Customer Relationship and Channels have a higher level of detail than the other building blocks⁴⁴.

Overestimating Business Model Canvas

In a discussion, one participant argued that BMC is a good template to think about business' dimensions. Next to this template, the value is minimal in his opinion. There is nothing more said about business models than in the last few years, it is the same knowledge but marketed and visualized very well, it is getting hyped, is what he concluded. He proposes to think more about generating long term sustainable business models and not focusing too much on the short term business models and seeing BMC as an important factor for starting a successful business. Success is, according to the criticizer, also depending on timing and luck⁴⁵.

Combining other methodologies with Business Model Canvas

Business Model Canvas aims to make the development business models easily. For making it easier they have made concessions about the depth and breadth of covering the topics. Other business academics therefore propose add-ins, add-ons or alternatives for the BMC. For example, the Lean Canvas of Ash Maurya, which is a canvas that is more focused on problems and is purely based on startup companies. However the BMC is focused on the infrastructure and can be applied on existing firms⁴⁶. Another critique is that the value proposition building block is too abstract, there is no space for how a business satisfies the customers' needs. It is based on a value proposition and infrastructure and not

⁴² <http://businessmodelhub.com/forum/topics/capital-investment-and-cash-flow-in-bmc>

⁴³ <http://businessmodelhub.com/forum/topics/ideas-for-the-business-model?id=2478825%3ATopic%3A45558&page=2#comments>

⁴⁴ <http://kraaijenbrink.com/2012/07/shortcomings-of-the-business-model-canvas/>

⁴⁵ <http://businessmodelhub.com/forum/topics/limitations-and-assumptions-of-the-business-model-canvas?id=2478825%3ATopic%3A75585&page=1#comments>

⁴⁶ <http://canvanizer.com/how-to-use/business-model-canvas-vs-lean-canvas>

about what is the actual customer need.⁴⁷ For this critique Alexander Osterwalder proposed an add-in which he called the 'Value Proposition Canvas', formerly named 'The Customer Value Map V.0.8', where the alignment between customer needs and value proposition can be analyzed better by using an additional canvas⁴⁸. By identifying the value creators and pain relievers more explicit in combination with products and services, the value proposition can be designed. Since the critique was that the value proposition block in the BMC is somewhat weak in terms of alignment with customer segment (needs), the value proposition is combined with a customer segment, which contains a combination of explicit customer pains and customer gains that help to identify the job-to-be-done. Through this add-on to the Business Model Canvas, the value proposition is translated in customer gains which give business model designers a better justified value proposition based on customer segments. One warning that should be noticed when using the Customer Value Map is that the customer needs are based on the observations of the customers and remains an assumption on which the value proposition is based.⁴⁹

4.3 Conclusion strengths and limitations based on the online review

The online discussion review on Business Model Canvas is grouped based on the elements of a business model: Value, architecture of the relation between the firm and its exchange partners, architecture of what a firm is doing and financial aspects, and a general topic for strengths and limitations which cannot be covered by the four elements. In this paragraph sub-research question: 'What are the strengths and limitations of the Business Model Canvas based online discussions?' is answered.

4.3.1 Value

Based on online discussion the focus on Value is a strength of the BMC. However, the building block Value Proposition does not cover the whole spectrum of organizations. Non-profit and Social Enterprises are not covered in the BMC, because the BMC is now focused around Customer Value and Economic Value. In other words a limitation is that Social Value and the related subjects such as Social Costs and Social Benefits are missing in the conceptualization of the Value Proposition.

Another line of reasoning, which is related to the misalignment with the whole spectrum of organization, is the absence of Strategic Purposes. This limitation is directed at the purpose of a company. The BMC misses a way to capture the mission, visions and the strategic purpose of the organization. In line with the limitation mentioned in the previous paragraph, this contains, if necessary, the Social Value.

⁴⁷ <http://www.informing-arts.biz/how-to-drive-innovation-via-customer-value-creation/>

⁴⁸ <http://businessmodelalchemist.com/2012/01/the-customer-value-canvas-v-0-8.html>

⁴⁹ <http://www.informing-arts.biz/how-to-drive-innovation-via-customer-value-creation/>

4.3.2 Architecture of the relation between firm and its exchange partners

A limitation can be identified based on the fit between the business model and the exchange partners. In the BMC Customer Relationships and Channels are described but nothing is written about how to execute a business model. This limitation is improved by Osterwalder by adding levels of strategies of using the business model based on the BMC. Level 1 strategies are business model users who develop a business model based on BMC as a checklist. Level 2 strategies are about the reinforcement of different business model blocks, the business model designers have a good understanding that a strong alignment is needed between the building blocks, so the building blocks reinforce each other. Level 3 strategy is about disrupting the companies own business model while they are successful.

Another limitation is directed at the ambiguity of customers and partners. This discussion is based on the different perspectives the BMC can be used for. For example: An organization has customers, when a business solves a problem or does a job. However, an organization has a partner relationship, if the organization is helping another organization to solve a problem or does a job for them based on your resources. This limitation is not a fundamental one and can be tackled when having more experience with working with the Business Model Canvas.

An important limitation of the BMC is the exclusion of competition. Several reasons why competition should be included are the potential misalignment with the market. The competition has major influence on individual building blocks.

4.3.3 Architecture of what a firm is doing

Limitations about the architecture of what a firm is doing are identified. The first three are comparable. It is about making a story out of the BMC, the execution of business model innovation and mergers and acquisitions based on the BMC.

It is not clear how to execute from a filled in BMC to a running company. So the limitation is that the process of starting the company should be included in the Business Model Design process by making a story of how the building blocks are related. This is also related to merger and acquisitions. It is not possible to just copy and paste different building blocks in a merger. A whole new business model should be designed.

4.3.4 Financial Aspects

A limitation could be recognized when a business model is based on capital investment. There is specific building block for financing. However, this could be covered by Key Resources.

4.3.5 Other strengths and limitations

The final general comment is about the levels of abstraction. The 'Key resources and Key activities' and the 'Customer relationship and Channels' are too detailed compared to the other building blocks.

4.3.6 Conclusion

Based on the online comments of the Business Model Canvas several strengths and limitations can be identified. The strengths and limitations are grouped around the business model elements outlined earlier in this thesis. The main results are about the narrowness of the Value Proposition, the fit between the Business Model Canvas and the exchange partners, the exclusion of competition, the execution of a business model based on the Business Model Canvas. In table 14 the main results are summarized.

Results of the online review of Business Model Canvas grouped based on business model elements	
Value	Based on the online review, the building block Value Proposition does not cover the whole spectrum of organizations. For example, it is hard to structure non-profit and governmental organizations based on the value proposition used in the Business Model Canvas. The Value Proposition is now constructed around Customer and Economic Value. Social Value is not taken into account.
Architecture of the relation between firm and exchange partner	A limitation is identified between the fit of the business model and the exchange partners. It is not clear how to execute a business model on the building blocks Channels and Customer Relationships. Adding more detail in the exchange mechanisms does not mean that it is more clear. Furthermore, an ambiguity of customers and partners is described in an online comment. It depends on what kind of perspective the Business Model Canvas is designed. A final limitation is the exclusion of competition in the Business Model Canvas. Competition should be taken into account because it has a major effect on the individual building blocks.
What the firm is doing	It is not clear how to execute a business model based on the Business Model Canvas. In the comments online it is mentioned that there should be a process of how to execute the business model. This limitation is related to comments regarding; making a story out of a business model, execution of a business model innovation and mergers and acquisitions based on the Business Model Canvas.
Financial Aspects	A limitation could be recognized when a business model is based on capital investment. There is a specific building block for financing. However, this could be covered by Key Resources.

Table 14: Results of the online review of Business Model Canvas

5. Results of the interviews

In this chapter the collected data from the different cases is displayed and analyzed. As outlined in the method section, the data analysis will be based on a narrative approach. As mentioned by Yin (1981) case studies can be coded as a series of answers to open ended questions, which lead to a storytelling text (Yin, 1981, p. 64). Per question the narratives will be described. When necessary, quotes of the interviewees will be tagged with apostrophes. In the tables is made clear which findings can be attributed to which interviewee, so no references to the interviewees are provided. After every table the stories will be compared on agreement and disagreement and conclusion per criteria is drawn.

To get insight in the different cases a brief description about the industry of the company is provided in the first paragraph.

5.1 General introduction of company and experience with the Business Model Canvas

At the start of every interview the company is introduced and the general experience with the Business Model Canvas (BMC) is questioned. The interviewees can give their thoughts about what they have in their mind about the BMC. So, during the interview more detailed question can be asked because the general thoughts of the interviewee are already given. The results of the general experiences are also used later in the interview if the topics match. The general introduction to the company provides information about the context in which the Business Model Canvas is used. The result of the interviewees are presented in a story telling way, as outlined in the method section. It is inevitable to use quotes once in a while.

To get an overview of the companies which represent the different cases, the companies have a short introduction of what they are and what they do. In Table 12 the industry and years of experience is showed. The industry is used as case name.

Case:	Industry: (and Id of company)	Years in present position:	Years of working experience:
1	Construction	10	35
2	Sustainability advice	3	3
3	Innovation management	5	24
4	It integrator	1	13
5	Sustainability resource	0,5	6
6	Infrastructural Construction	1	8

Table 15: Company ID and experience of the interviewee

5.1.1 Introduction Construction Company

The Construction Company is one of the biggest in The Netherlands. The core of the business is building Infrastructure, Utilities and Housing. The core of the organization is based around project management. The interviewee is working in the Business Development department of the organization. In this department the Business Model Canvas is used as a helpful tool to develop and communicate new businesses.

The general opinion of the interviewee from the Construction Company is that the tool is multifunctional which implies that the tool can be used from different perspectives, or be started from different building blocks. For example, more customer oriented departments or employees of the organization will start at the building block Customer Segment, more technological employees might start at the Key Activities or at the Value Proposition. However, if these different disciplines are mixed in one team, the BMC will function as a communication and an idea structuring tool. Furthermore, the interviewee of the Construction Company states that 'the BMC is not complete, which does not mean that the BMC should be changed. For example, a major part of business model development is financial calculations. A method of calculations is not covered in the BMC. A disclaimer next to the BMC with explanation about financial calculations and a starting point will benefit the use of the BMC in the organization' (Construction Company).

5.1.2 Introduction Sustainability Advise Company

The Sustainability Advise Company's core business is 'Supporting development of new and attractive products in the area of sustainability, which will lead to successful market introduction'. The company is part of a holding. Other departments in the holding are big customers. Customers outside of the company are also helped. The Business Model Canvas is used at the advisory department.

The general opinion of the Sustainability Advise Company is: Visually the BMC is a very strong tool. The structure of the business is merged in one document. Interviewee of Sustainability Advise Company mentioned that 'the tool is easy to understand and read, but the process of designing the tool is a weak point of the BMC' (Sustainability Advise Company). For filling in the BMC 'additional tools are needed such as the 'Klantwaarde generator' which is a Dutch tool to define the Value Proposition in combination with another tool which is aiming at the pains and gains of customer'. However, a 'contribution of the tool is that employees are stimulated to look at their business from different perspectives'. As mentioned in the first interview, technological oriented employees are stimulated to think in an early stage of development about their customers and think more creative to look beyond existing technology.

5.1.3 Introduction Innovation Management Department

The Innovation Management Department is part of a big company. It consist of advisory employees to the Executive Board. The BMC is used for the innovation

process of this multinational to support innovation in the idea phase of the innovation process, in their terms 'the innovation funnel'. After an evaluation, it was identified that during the idea phase, including the pitch of the idea, important parts of a business model are not covered in the methodology of their innovation process.

The general opinion about the BMC is that it complements missing parts from the innovation process of the company. Therefore, 'the idea pitchers are more armored with knowledge to answer obvious and similar questions from the audience'. However, after adaptation of the idea by the organization the subsequent development steps are not fully supported by the BMC. Particularly 'how to come from an idea to a running business' and 'the building blocks Cost structure and Revenue streams are missing detail to complete a business model.' 'The BMC is good tool to structure the pitch of the idea and the stimulates to think about important parts of a business model, however in later stages of business model development the BMC is missing detail to set up a complete business model'.

5.1.4 Introduction IT Integrating Company

The fourth company is an IT Integrating Company. The core of the company is providing organizations with complete solutions for their ICT needs. The respondent of the IT Integrator: 'the BMC is a good tool for the creativity process in business model innovation'. The uniform language of the BMC makes it a good tool for communication in the project group of the business model development. However, the BMC is not complete, there are complementary tools needed to give business model innovation a good platform. In workshops and based on congresses the interviewee recognizes that participants are very enthusiast about the BMC, but after a while working with the BMC some questions are rising. These questions are accommodated by adjusted versions or add-ons on the BMC. However, the interviewee doubts these adjusted versions and thinks, 'the BMC is a good structured tool, although the way to work with the tool should be subjected to adjustments. One of the improvements is proposed by Osterwalder himself, he added the 'Value Proposition Canvas' to the toolbox of the BMC. This is beneficial for the deepening of the most important building block: Value Proposition '. 'Furthermore, notably is the rise of the BMC. In a very short period the BMC has become a widely known and successful tool. However, the main question is how to maintain this popularity and successfulness. Now an 'ecosystem', which is based on the 'ecosystem' of the elaboration of the book, is recognized'. A lot of faith is allocated by the interviewee to this ecosystem to complete and maintain successfulness of the BMC. A last limitation is the internal focus of the BMC. The tool is not motivating to look at external factors.

5.1.5 Introduction Sustainability Resource Company

The Sustainability Consultant Company is offering solutions and consulting services which change the way manufacturers are recycling their products after

their economical lifetime. In other words, products are resources of raw materials.

'The BMC is a good tool for business model development. The most important and most useful building blocks are: Value Proposition, Customer Segment and Key Partners. The most complicated building blocks are: Customer relationship and Channels because these building blocks have the most in common. A remark is made to the direction of using the BMC. In western countries the direction of reading is from left to right'. However, the most important part, according to interviewee, of the BMC for innovation and creativity is the right side, the 'Customer side' including the Value Proposition. Therefore, in workshops the BMC is separated in two parts and is started with the 'Customer side'. After identifying what the customers need is. The right side should be investigated after approval of the Value Proposition, Customer Relationship, Channels and Customer Segment. 'The financial calculation can be developed afterwards.'

5.1.6 Introduction Infrastructural Construction Company

The Infrastructural Construction Company's core business is infrastructural and housing projects. In the Infrastructural Construction Company an adjusted BMC is used for internal communication, structuring and alignment of innovation. The BMC is extended with two building blocks at the bottom of the canvas. 'Social Costs' and 'Social Revenues' are added. The organization has added it because the BMC is used for public tenders. 'For these public tenders a fictive discount can be generated when the social costs decreases and social benefits increases'. 'This addition forces to particularize the Value Proposition more to Social Value'. Moreover, strength of the BMC is the distinction of the building blocks and the structure of the canvas.

5.2 Validity of the Business Model Canvas

To validate the BMC four validity types are investigated in this thesis. Based on Aken and Andriessen (2011); Babbie (2010); and Gerring (2012) construct validity, internal validity, external validity and pragmatic validity are identified to analyze the validity of the business model tool. In this paragraph the data of the interviews is structured based on the sub-criteria and is structured in tables. For every criterion a multiple-case analysis is given.

5.2.1 Construct validity of the Business Model Canvas

The construct validity is about if the instrument measures what it should measure. Or in other words is the tool doing what it should do. Therefore, the building blocks of the BMC are investigated. Furthermore, based on purposes of a business model tool from theory; competitive strategy, technological innovation and business model innovation is added.

Value proposition

Construct validity: Value proposition
Company id: Result based on interview:
Construction The Value Proposition is the most important part of the BMC.

<p>Sustainability advice</p>	<p>It forces the user to define and be clear, in a few lines, about the business idea.</p> <p>The Value Proposition is very useful to define what the business will deliver. The addition of 'Social value' is necessary to complement the Value Proposition. It is important to keep this topic in mind because there might be more value for the customer than initially is defined.</p>
<p>Innovation management It integrator</p>	<p>Not specifically mentioned in the interview.</p> <p>The major point of the BMC is the Value Proposition. This building block should be appealing and is one of the most concrete building blocks. However, strategic choices cannot be mentioned in the Value Proposition. Therefore, you need an extra explanation next to the Value Proposition to make the whole picture clear. Value Propositions will add distinctiveness to the business model. However, it is important that the customer awards value to the proposed value proposition and not the company itself. Because, if the customer does not recognize the proposed value there is no legitimacy to start with the proposed business. Furthermore, the Value Propositions should be described as benefits instead of product features. In our business the 'Value Propositions' are described with a list of Unique Selling Points (USP). At the Value Proposition building block there should be benefits instead of features.</p>
<p>Sustainability consultant</p>	<p>The Value Proposition is the most important building block. A lot of effort and emphasize should be given to this building block. To have a good Value Proposition extra tools are needed to identify pains and gains of the customer.</p>
<p>Infrastructural Construction</p>	<p>The building block Value Proposition is not complete. Therefore the building blocks social return and social benefits are added at the bottom of the canvas because Social Return of Investment next to the Return of Investment is very important. All our innovations are associated with these two building blocks. During the design process of the BMC we deepen aspects of the value proposition in these two building blocks. By doing this, emphasis is more on the whole value, so including social value.</p>

Table 16: Construct validity: Value proposition

The building block Value Proposition is for four out of six interviews mentioned as very useful, most important part and major point. Two mentioned the Value Proposition is not complete; 'Social Value' should be added. One mentioned that an additional tool is needed to define the Value Proposition. Concluding, the Value Proposition is beneficial for developing a business model with note that 'Social Value' should be taken into account and additional tools could be need to define the Value Proposition in the canvas.

Customer Segment

Construct validity: Customer segment	
Company id:	Result based on interview:
Construction	The Customer Segment describes the only (real) or most important customer. In some cases more BMC's have to be filled in before the real customer is found. The building block is visually too big.
Sustainability advice	To fill-in the Customer Segment an additional tool is used. Namely, developing personas to make clear what the customer actually is. By doing this, it is easier to define a good Customer Segment.
Innovation management	Not specifically mentioned in the interview.
It integrator	'In a lot of business model cases, the Customer Segment is filled-in very traditional. The traditional way is to describe the segments as branches'. In opinion of the interviewee this is wrong. You need to segment based on functional specifications. 'In our business we can serve more branches with one functionality'. Furthermore, in this building block, 'a lot room can be used to be distinctive. Therefore, in workshops I force them to think different. They have to make a description of a person which might be your customer, the description have to of someone on the level of the decision making unit. With the main question: what is their motivation to buy the product? However, this is a bit far from the actual BMC. But if you make better descriptions of who you customer is, you will make a better BMC'.
Sustainability consultant	'The customer segment is one of the important building blocks'.
Infrastructural Construction	Not specifically mentioned in the interview.

Table 17: Construct validity: Customer segment

The building block Customer Segment is one of the important building blocks in the Business Model Canvas. However, the way how to use this building block is diffuse. For example, Construction Company states that the actual customer should be written in the BMC, another mentioned that when designing a business model, a profile about a potential customer must be made. The respondent of the IT Integrator Company remarked that they made the transition from branches to functional based customer segment.

Not a clear strength or limitation can be derived from the data; however, based on the results, the description of the Customer Segment should be as specific as possible and connected with the question what the customer actual wants.

Channels

Construct validity: Channels	
Company id:	Result based on interview:
Construction	The building block Channels describes the communication lines between the company and the customer and is not very important for the business models the company is making.
Sustainability advice	The building block 'Channels and Customer Relations are multi-interpretable, for example the channels can be a lorry for distribution but also a website for communication. These building blocks are often mixed, the content in building block Channels is the way how to distribute information and products and the Customer Relation is how to organize this. The distinction of these two building blocks is a blurred field, for example personal contact with a customer, where do you put it? Is it a channel? So, how to get in contact with the customer? Or is it a customer relationship: a personal conversation?
Innovation management It integrator	Not specifically mentioned in the interview.
Sustainability consultant	In the distribution channels, different channels can be recognized such as, marketing channels, communication channels, distribution channels and sales channels. These diffuse possibilities of channels result in a tough building block to fill-in. In every BMC emphasis is needed to customize the distribution channels. The Channels is intertwined with building block Customer Relations. In the respondents opinion 'Channels is about how to reach the customer or have effect on a customer. I still cannot explain the difference; therefore I focus on the picture of the lorry of the building block Channels of the BMC. However, this ambiguity of Customer relations and Channels is not affecting my opinion about the tool. The key structure is very useful and if there is some misunderstanding about two building blocks will not necessarily affect the usefulness of the tool'.
Infrastructural Construction	Not specifically mentioned in the interview.

Table 18: Construct validity: Channels

The question about Channels building block causes some discussion. During the answers the link with Customer Relations is made, quotes as 'blurred lines' and 'intertwined' are used in the answers to explain the discussion about these two building blocks. A distinction is made in the answers between communication channels and distribution channels. One, for example, is focusing on the Lorry icon, which might not cover all the aspects of this building block. From three out of six answers the construct of Channels is not clear. So the Channels building block is not useless but causes some troubles filling in and has overlap with Customer Relations.

Customer relations

Construct validity: Customer relations	
Company id:	Result based on interview:
Construction	The Customer Relationship building block is important. Depending on the complexity of the relationship, the Customer Relationship can be seen as a 'Network' building block. The building block Customer relationship is more important than Channels. However most of the time an 1:1 relationship is indicated, as a product is developed and sold to one customer (-group). If the customer does not like the product, another customer is contacted, or the product is changed in line with the wishes of the customer.
Sustainability advice	There is a blurred line between Channels and Customer Relations. The Channels is the way how to distribute information and products and the Customer Relation is how you organize this.
Innovation management It integrator	Not specifically mentioned in the interview.
Sustainability consultant	Customer Relations is about transfer of the Value Proposition and is one of the important steps in the BMC to transfer the value. Furthermore, it is an underexposed building block, which may result in a negative impact for the business model, if an organization does not structure the Customer Relation building block well the organization will not be able to communicate the Value Proposition.
Infrastructure Construction	The building block Customer Relations is intertwined with building block Channels. 'It is hard to distinct from the Customer Relationship. I do not fully understand how to fill in this building block'.
	Not specifically mentioned in the interview.

Table 19: Construct validity: Customer relations

As with the Channels, at the Customer Relations building questions regarding the construct arise. The main line of answers is about how to contact the customer and how to communicate the value proposition/product. One mentioned the under exposedness of the building block and one mentioned the term 'Network' in combination with this building block. It is clear the respondents experience the Customer Relation as a building block about how to communicate with the customer. In contrary to the Channels there is more consensus about the construct Customer relationship, however there are different conceptions about the content of the building block and overlap with the Channels building block.

Cost structure and revenue streams

Because of the overlapping answers of the question these two criteria are merged.

Construct validity: Cost structure and revenue streams	
Company id:	Result based on interview:
Construction	Cost Structure is an easy part. Calculations are based on experience with earlier budget proposals. To make extensive calculations the building block Cost Structure and Revenue Streams' have no space. Furthermore, a time element is missing to calculate financials.
Sustainability advice	During the development stages of a business model four stages are identified. In every phase more information and specification is added. One of these specifications is a financial model. A good financial model or way of calculating is lacking in the BMC. This should be more specific mentioned in the book of the BMC.
Innovation management It integrator	Not specifically mentioned in the interview.
Sustainability consultant	People struggle with the Cost Structure as with the Revenue Stream, they do not know how to cope with these two building blocks. For example, how do they structure, fill-in and calculate the financial details? Or should they only emphasize on an abstract structure of the costs and revenues. The main question regarding the revenue potential, as with the costs, is if the BMC is the right place for an exploitation calculation. In my opinion it is not because it has to be calculated in a later development stage of the business model.
Infrastructural Construction	Not used in detail in business model development. Emphasis in our workshops was on Value Proposition, Customer Segment and Key Partners.
	Not specifically mentioned in the interview.

Table 20: Construct validity: Cost structure and revenue streams

The answers of the interviewees have consensus. The Cost Structure and Revenue Streams are too limited to make detailed calculations. However, for the interviewees it is not clear in what stage of business model development the financial calculations should be made. The first calculations can be made in the first phases but will not add much to the business model. Furthermore, the element 'Time' is missing to calculate proper financials.

Competitive strategy

Construct validity: Competitive strategy	
Company id:	Result based on interview:
Construction	Competitive strategy is missing in the BMC. There is need for an extra block to incorporate the competition, risk and market.
Sustainability advice	We did not use the BMC for competitive strategy, therefore we use position papers. A benefit could be obtained for the organization if the BMC is used for competitive strategy. There

Innovation management	<p>might be a need for employees to know their relevance in the organization.</p> <p>The competitive strategy is not seen in the BMC. Of course, the BMC can be designed on a very high level of abstraction, but this will become rather vague. However, in the BMC there is no room for competitive strategy. It should be included. A lot of emphasis is directed too partnering in the BMC but no emphasis is aimed at competitors. In the pitches of the innovation process, a typical comment is: 'It does already exist for a long time in another country'. To cope with this type of comments, the process managers are advising to conduct a 'competitor, law and culture analyses before the pitch. For the organizational strategy I prefer road mapping techniques.</p>
It integrator Sustainability consultant	<p>Not specifically mentioned in the interview.</p> <p>The BMC is not helping to gain competitive strategy for the whole organization. It is hard to fill in a BMC for the whole organization and if a BMC designed for the holding, the benefits are doubtful in terms of competitive strategy. Competitive strategy in the BMC itself is not included. For competitive strategy a story is needed next to the designed BMC. For competitive strategy the organization need to discuss and communicate a lot, detailed description in a building block is not good enough. Competitive strategy is a topic for the Parking, which is a side paper to memo topics of discussion for later use.</p>
Infrastructural Construction	<p>Not specifically mentioned in the interview.</p>

Table 21: Construct validity: Competitive strategy

In this criteria two lines of reasoning can be recognized. BMC in combination with corporate competitive strategy and competitive strategy as building block the BMC. The BMC is not used for corporate competitive strategy in four out of six interviews. However, the competitive strategy in the BMC is missed by four out of six. About a methodology or solution to cope with this missing part no consensus is identified. However, suggestions proposed for competitive strategy inside the BMC: an extra building block and competitive strategy as a story next to the BMC.

Business model innovation

Construct validity: Business model innovation	
Company id: Construction	<p>Result based on interview:</p> <p>The BMC is not being used for the innovation of an existing business model. The business model innovation is limited to reuse of individual building blocks which we have defined earlier.</p>
Sustainability advice	<p>It is specific build for business model innovations. We use open innovation partners when an innovation does not fit in</p>

	<p>our organization and try to partner with them. For assessing the fit of a business model in an existing organization the BMC is used. If a valuable business model is not completely fitting the core business of the organization and is ignored by the organization. A partner can be searched to exploit the business model, with my organization as a partner. If it fits to the partner organization the business model might change. And we, as an organization, are then the 'Key Partner' instead of the business model owner.</p>
<p>Innovation management It integrator</p>	<p>Not specifically mentioned in the interview.</p>
	<p>Business model innovation is beneficial for the success of the organization. In business model innovation the BMC is indispensable. Simply, because I do not know other tools which cover the whole spectrum of business models. However, the role of business model innovation is essential for new businesses; the BMC is an important part in this business model innovation.</p>
<p>Sustainability consultant Infrastructural Construction</p>	<p>Not specifically mentioned in the interview.</p>

Table 22: Construct validity: Business model innovation

There is a clear link between business model innovation and the BMC. However, the BMC is not always used for business model innovation. The BMC is more used for new business model development instead of innovating existent business models. The BMC provides two respondents new perspectives on business model innovation, reuse of individual building blocks and partner with another company to exploit an unused business model.

Key Resources and Key Activities

Because of the overlapping answers of based on the Key Resources and Key Activities these two criteria are merged.

<p>Construct validity: Key resources and Key activities</p>	
<p>Company id: Construction</p>	<p>Result based on interview: Key Resources is not an important building block. Resources are needed, but there is no need to describe them in detail. However, Key Activities is an important block and easy to use. It describes which activities the company must have 'in house' to make the business model work. Any missing activities have to be completed with partners.</p>
<p>Sustainability advice</p>	<p>At the building block Key Activities and Key Resources there are discussions regarding the content, which is very beneficial. Because if we put design a building in Key Activities then it is good to discuss who is going to do the activity, which we put in the Key Resources. It is good to explicate these two building blocks and discuss it. It contributes to a more physical</p>

Innovation management It integrator	business model.
	Not specifically mentioned in the interview.
Sustainability consultant Infrastructural Construction	The two building blocks Key Resources and Key Activities. The distinction between these two is not very strong. A Key Activity is something you do and a Key Resource is an asset. But, for example marketing, this can be an activity and a resource.
	Not specifically mentioned in the interview.
	Not specifically mentioned in the interview.

Table 23: Construct validity: Key resources and Key activities

The building blocks are the second difficult part of the BMC. The distinction between these two is not very strong, which lead to discussion. There is no consensus recognizable based on the data. However, the Key Activities is seen by one as more important than Key Resources. And the discussion about the content of the building blocks is seen as beneficial. However, the distinction between these two building blocks can be doubted.

Key Partners

Construct validity: Key partners	
Company id: Construction Sustainability advice	Result based on interview:
	Not specifically mentioned in the interview.
Innovation management It integrator Sustainability consultant Infrastructural Construction	The BMC is in our organization used for technological innovations if the organization is not capable of exploiting the innovation, open innovation partners are used and try to partner with them.
	Not specifically mentioned in the interview.
	Not specifically mentioned in the interview.
	Key Partners is one of the most important building blocks.
	Not specifically mentioned in the interview.

Table 24: Construct validity: Key partners

There is not a clear view of what respondents think of the Key Partners. Possibly because the building block Key Partners is not used much. The Sustainability Consultants business model is about partnering with producers of goods, so this might be why it is considered as one of the most important building blocks.

5.2.2 Internal validity of the Business Model Canvas

Internal validity in assessing the business model tool is about if the relationship of the tool with the organization is justified (Aken et al., 2007). Applied in this research internal validity measures if the relationship between the tool and organization match and if they are complete.

Easy to understand

Internal validity: Easy to understand	
Company id:	Result based on interview:
Construction	The BMC is an easy to understand tool. More experience will increase the quality of the output. A short explanation is not enough, a seminar and practicing with the BMC is necessary to understand the tool fully.
Sustainability advice	The BMC was not fully easy to understand, the Channels and Customer Relations are difficult. It is multi-interpretable, for example the channels can be a lorry for distribution but also a website for communication. These building blocks are often mixed, the Channels is the way how to distribute information and products and the Customer Relation is how you organize this. It is a blurred field, for example personal contact with a customer, where do you put it? Is it a channel? So how to get in contact with your customer? Or is it a customer relationship: a personal conversation? At the building block Key Activities and Key Resources there are some discussions, which is very beneficial. Because if we put design in Key Activities then it is good to discuss who is going to do this, which we put in the Key Resources. It is good to explain these four building blocks and discuss it. It contributes to a more physical business model.
Innovation management	Not specifically mentioned in the interview.
It integrator	The BMC was clear to me in a short time. But there are two building blocks where problems occur. Namely, Key Resources and Key Activities. The distinction between these two is not very strong. A Key activity is something you do and a Key resource is an asset. But, for example marketing, can be an activity and a resource.
Sustainability consultant	The BMC is not clear to me, until so far I have problems with filling in the building block 'Customer relationships'. In my view it has a lot of overlap with Channels. It is about how to reach the customer or have effect on a customer. It still cannot explain the difference, therefore I focus on the picture of the lorry of the building block Channels of the BMC. However, this ambiguity of customer relationship and channels is not affecting my opinion about the tool. The key structure is very useful and if there is some misunderstanding about two building blocks that will not necessary affect the usefulness of the tool.
Infrastructural Construction	After an internal workshop, a few employees in the organization understand the BMC now. During this workshop it became clear it is a challenge for technically educated people to understand the business model but in the end the BMC was clear for everyone.

Table 25: Internal validity: Easy to understand

All interviewees who responded to this question had some remarks about easily

understanding the tool. The building blocks Customer Relations, Channels, Key Activities and Key Resources give problems with understanding. More specific the building blocks are multi-interpretable, Customer Relations and Channels are overlapping each other, as are Key Activities and Key Resources. The interviewees, 5 out of 6, doubt the benefits of this distinction between building blocks. Furthermore, alignment between people who work with the BMC is necessary. For example, through workshops or introduction to the BMC.

Visual representation

Internal validity: Visual representation	
Company id:	Result based on interview:
Construction	The visual presentation is good. The split between customer related items at one side and the own organization related items at the other side is good. Furthermore, the business model can be set up from different angles, there is no strict starting point, which is an advantage.
Sustainability advice	The book Business model generation by Osterwalder and the business model tool are visually very strong. The BMC is a strong combination of other models and theory, it is not a new theory but it a very strong overview of existing theory. What is missing in the visual of the BMC is the 'Social value'. There is no motivation to add the social value, which is necessary in my opinion, even if the customer is not asking for it. It is good to mention it. Therefore I suggest a building block at the bottom of the BMC. Furthermore, the 'Why-question' is missing: Why are we innovating? In this point the 'Social value' is also relevant.
Innovation management It integrator	Not specifically mentioned in the interview.
Sustainability consultant	From the visual representation more benefit can be obtained. When participants are creative and the process manager is filling in the BMC, mutations can be visually better represented. For example, show the begin situation and then the new situation. A big emphasis, to maximize the visual presentation, is on the process leader.
Infrastructural Construction	The visual representation is good and simple. However, a remarkable point in the visualization is the decision to put the customer side on the right side of the canvas. In western parts of the world, we are used to read from left to the right. In my opinion the customer side is the more important than the internal part of the BMC. Therefore, the sides should be changed. Furthermore, the Value Proposition as a center in the canvas is very important.
	Not specifically mentioned in the interview.

Table 26: Internal validity: Visual representation

The general opinion is that the visual representation of the BMC is good, because the BMC can be used from different starting points, the representation is good

and simple. However, some remarks are made; the 'Social Value' is missing in the visual representation, the 'Why-question' about why make a business model is missing in the BMC. Furthermore a remarkable point that was made is, to have more emphasis on the customer: the left and right side should be the other way around. Because the natural direction of reading is from left to right which implies that the Key Partners, Resources and Activities are the starting point. According to one interviewee this should be changed.

Easy to operate

Internal validity: Easy to operate	
Company id:	Result based on interview:
Construction	The BMC is easy to operate, but requires some experience. The BMC cannot be explained in a short movie (5 to 10 minutes) on You Tube. It is advisable to follow a seminar, explaining the usage of the tool and read/study related articles.
Sustainability advice	Not specifically mentioned in the interview.
Innovation management	Not specifically mentioned in the interview.
It integrator	The tool is more or less easy to operate; in workshops I explain every building block of the BMC. For every building block I use several minutes, which will be ended with a summary about the process to fill-in the BMC. In my workshops I try to start from different perspectives. When working with a sales department, I start at the Key Resources and Key Activities, when working with an engineering department I start at the customer side of the canvas. This often results in new views on a particular topic.
Sustainability consultant	For generalist people with a little business sense the tool is easily understandable. But for specialists such as technical people it is harder to understand and use the BMC. They need a manual or extensive explanation of the BMC. The tool is for the overview picture, so not everyone needs to understand the full canvas. If they can participate in discussion of one specific building block on their discipline, that is also beneficial for the process.
Infrastructural Construction	Not specifically mentioned in the interview.

Table 27: Internal validity: Easy to operate

The BMC is easy to operate. It needs an explanation as mentioned in the criteria but after this explanation the BMC is easy to operate and is easy to adjust to the goal of the meeting or the setting of participants involved in a workshop.

Completeness

Internal validity: Completeness	
Company id:	Result based on interview:

Construction	The tool is good, but not complete. An adjustment is not necessary, but some parts need a disclaimer to explain the incorporation of missing parts, such as: the financing of a project, financial calculations and risk and time related items.
Sustainability advice	The BMC is an almost complete tool and book. I miss the 'Shared Value' and 'Social Value'. Furthermore, the 'Why' question is missing; Why are you doing something? This question is closely related with 'Shared or Social Value'. And the third point is that the financial calculations are missing. Maybe it is too detailed and specialized but more emphasis is welcome.
Innovation management	It lacks some important points. I do not know it in detail, but in particular how to come from an idea to a running business. And at the bottom of the BMC, the financial building blocks are not fully developed.
It integrator	The BMC is complete so I dislike the variations of the canvas. During workshop discussion is about the missing building block and that is 'Competition'. I disagree with this building block, because the BMC is about the internal organization. Competition is an external factor. To face external factors you need other tools or theories such as the five forces model of Porter. Second, during the process of designing the BMC, automatically discussions of how the market reacts on this Value Proposition occur. The only minor point is that it is hard to manage different perspectives. It is not clear how to manage these issues during the BMC-design phase.
Sustainability consultant	Maybe the BMC is not complete and are there possibilities to improve and add building blocks. But for me it is good enough. It will never be perfect. Only, a place to 'park' ideas could be a good addition to the BMC. During the development process ideas about, for example, competitive strategy can be parked for later use. So, it will not be forgotten in time.
Infrastructural Construction	The tool is complete when adding the 'Social Value'. In our organization we specialize the Value Proposition by adding 'Social value'. In general the BMC is covering all aspects of a business, but when presenting a business idea or participating in a public tender you need to do more. Therefore emphasis is on the 'Social Value', this results in more creditability in tenders and ensures more discount on the tender bid. In our business plans we specialize in specific building blocks which, for the specific public tender, are needed to be exceptional. Most of the time this means we add 'Social Value'. To conclude, there are not any missing essential parts in the BMC, because I can add all the important things in different building blocks, only a change of focus to social value and specialization of different building blocks depending on the tender is needed. However, essential parts are not missing addition of the building blocks 'Social Benefits' and 'Social Costs' is beneficial for the workability.

Table 28: Internal validity: Completeness

The BMC is not complete, the Construction Company mentioned that the financing of a project, financial calculations and risk and time related items are missing. Furthermore, Social Value, Social Costs and Social Benefits are missing for Sustainability Advice and Infrastructural Construction. Competition/Competitive strategy and other external factors are missing for Innovation Management Company, IT Integration Company and Sustainability Consultant. The missing parts can be grouped in financial calculations/funding, Social or shared value, and external factors such as risk, time and competition.

Creativity

Internal validity: Creativity	
Company id: Construction	<p>Result based on interview:</p> <p>Creativity is created due to the interaction between different people. By only using a BMC, it will help to structure the thoughts, but not stimulate the creativity. For example, a specialist is capable to fill in a specific block extensively, but not the whole BMC.</p>
Sustainability advice	<p>For creativity the tool alone is not enough. In the starting phase of it, it may help for creativity because of the new structured way of thinking. But further in the process the BMC is good for structure creativity, however for stimulation of creativity more is needed. One tool is Brain Bricks, which helps to associate with pictures. This visual way of working is very powerful for creativity, which is then structured by the BMC. It is hard to explain how creativity works, the BMC helps in creativity more or less but is not enough.</p>
Innovation management	<p>For communication and presentation you need to structure thoughts and creativity. For a good presentation you need to diverge to have a clear overview on the idea. After the presentation and adaptation it is necessary to converge again to have a clearer view on specific topics, for the next presentation you need to diverge again so the total picture is clear. So, the tool itself is not beneficial for creativity.</p>
It integrator	<p>Yes, the tool helps to be creative because the tool is a workshop tool. The group process is important for the creativity as well as attendees with a background in different disciplines. During the workshop, post-its are made and attached to a building block. The process leader consolidates the post-its in the building blocks of the BMC and by doing so, structures creativity. On the other hand, the BMC is beneficial for creativity because if attendees physically see the ideas on the canvas, new insights will be developed and discussions will be started.</p>
Sustainability consultant	<p>The tool itself is not helping to be creative. Other tools or methodologies are needed to be creative. For example the pain and gain diagram, this tool is beneficial for the Customer Segment. Which pains and gains are important for a customer. By making a persona the pains and gains of the customer become clear. And on that basis creativity can be fed by having another perspective on new business development.</p>

Infrastructural Construction	Normally the focus is too much on the left side of the BMC, now they are forced to focus on the right side. This means the participants need to step out of their comfort zones. Not specifically mentioned in the interview.
-------------------------------------	--

Table 29: Internal validity: Creativity

The respondents are almost unanimous; creativity is not benefited by the BMC. Creativity is created due to the interaction between different people or the use of other tools, however, the BMC will help to structure the thoughts. 4 out of 6 interviewees stated that the BMC is not stimulating creativity, however the BMC is beneficial for structuring creativity. One mentioned: 'the BMC is beneficial for creativity because if attendees physically see the ideas on the canvas new insights will be developed and discussions will be started' (IT Integration Company).

Organizational alignment

Internal validity: Organization alignment	
Company id: Construction	Result based on interview: Besides helping the management to introduce and follow up business models within the organization, it also creates alignment between partners and business development units.
Sustainability advice	We use the BMC to align concept teams. These teams investigate specific markets for new developments or trends, which should lead to new products or services. In these concept teams the BMC is the main tool for communication, coordination and specific for alignment of definition. It leads to a clear concept formation. Furthermore, the concepts are presented to the management by structuring it according to the BMC. However, the management does not communicate the business model to the employees through the BMC.
Innovation management It integrator	Not specifically mentioned in the interview.
Sustainability consultant	The BMC is not helping to align this organization. But I have suggested to the management that the department plans must be structured based on the BMC. So, the organization will be able to talk about the departmental plans in a universal language which is one of the strong points of the BMC. By using the BMC, the different departments in the organization can be compared, for example: the comparison of sales, marketing and engineering by using the same building blocks. The BMC is not helping to align the full organization to follow a business model. The tool is aligning in a group of business model developers but not the whole organization. A big part of the organization is not informed about the existence of the tool in our organization, which is not what we aim for. In this organization the tool is used as a process model and not as an organization alignment tool. However, in our tender department, the terms of the BMC are adjusted for the tender phases. In my opinion the adjusted version is a waste of time.

	There is a discussion about the necessity if the whole organization needs to work 'around' the Value Proposition, as it is now visually represented. One opinion is that not every individual needs to know what the Value Proposition is and needs to have a influence on the notion of the Value Proposition.
Infrastructural Construction	Not specifically mentioned in the interview.

Table 30: Internal validity: Organization alignment

The convergent conclusion about if the BMC is helping organizational alignment is that the BMC organizational alignment is not benefiting for the whole organization. It is not a communication tool from the management to the employees. However, the BMC is beneficial for organizational alignment within business development units, concept teams and between different departments. One explanation given is that the BMC is the 'universal language' to discuss business models.

Technological innovation

Construct validity: Technological innovation	
Company id: Construction	Result based on interview: Within our organization, the BMC is used for the introduction of technological innovations and the identification of related customers. In other words, it is a tool giving answers on: how to introduce an innovation in the market and who will be the customer.
Sustainability advice	In our organization, the BMC is used for technological innovations. It helps to clearly identify the goal and to keep attention to the goal of the technological innovation. It is specifically build for business model innovations but it can also be used for technological innovations. We use open innovation partners when an innovation does not fit in our organization and try to partner with them.
Innovation management It integrator	Not specifically mentioned in the interview.
Sustainability consultant	The BMC might be beneficial for technological innovation because technical people have to get out of their comfort zones and think of other aspects then only the technical features.
Infrastructural Construction	Not specifically mentioned in the interview.

Table 31: Construct validity: Technological innovation

According to the respondents, technological innovations can be introduced in the market by using the BMC. Respondent Construction Company and Sustainability Advice Company used the BMC for technological innovations because it helps to clearly identify the goal of the innovation and who will be the customer. The IT

Integration Company stated that the BMC stimulate technical people to step out of their comfort zones and think of other aspects than technology. So, the BMC is in terms of Technological Innovation used in two ways as incubator and as tool to come to technological innovations.

5.2.3 External validity of the Business Model Canvas

External validity is about the generalizability of results to other situations (Aken et al., 2007). In this research the external validity measures if the business model outcome is generalizable in the organization, between organizations and if the business model tool can be combined with other tools. This is an important criterion because it measures if the outcome, a business model, can be applied to the organization.

Communicability

External validity: Communicability	
Company id:	Result based on interview:
Construction	The BMC is a communication tool between business developers, the management and partners. Furthermore, it is a tool to structure the discussion with specialists, which might not have the full picture of a business model.
Sustainability advice	The tool helps enormously with communicating the canvas and because of this easy communication the business models can be compared more easily. For example in our concept teams, business models are developed and presented. Through the same format of the BMC, the tool can be compared and differences can be identified. Even if the business model is subjective and qualitative, the tool helps to assess the business models on a sort of quality. Sometimes, groups make very big canvasses, with pictures and a lot of information. This is not clear and easy to communicate. It is logical that groups will show what they have done. But when assessing the canvasses, the biggest and most intellectual BMC's where neglected because they were not understandable. Sometimes groups misuse the simplicity of the BMC and add too much, which results in an unclear picture. The BMC helps to communicate during the process with (potential) customers. Developing a business model is an iterative process and when presenting it to a customer you get feedback on if the customer likes it or not. It is a tool to talk about (Dutch: praatplaatje).
Innovation management	In our adoption presentations, we use the BMC as a way of structuring the pitch. The pitchers need to design their business model with key words. They have thought about the nine Building Blocks already and are capable of countering the first critical questions. So, we use the BMC for communication to the organization. In the feasibility process, the different Building Blocks are investigated further. Then we use the BMC as a guide to the process of developing new business models. For the communication from the management to the

It integrator	<p>organization the BMC is not used. Only innovations out of the organization to the management and the other employees are communicated through the BMC.</p> <p>The tool helps to communicate the end result, because an universal language is developed and everyone who has participated in designing the business model can easily reconstruct the idea. By using the BMC a common starting point is used, the differences in interpretation about a building block are diminished to a minimum. They all have the same starting point.</p>
Sustainability consultant	<p>The BMC is helping communicating the end results in two ways, internally and externally. Internally, the process manager needs a lot of clear BMC-sheets. For every new idea or perspective a new BMC needs to be filled in. The idea has to be made clear with pictures. Every participant has visualized what the new perspective or idea is and it can be discussed based on a common perspective. Externally, the BMC can also be beneficial for communicating the end result. In my opinion it is interesting if every company publishes a BMC of the organization on their website. It shows in one picture how the organization is working. Furthermore, for the external use the BMC is designed more abstract, for internal use it is more detailed. One important factor in communicating the end result is the story behind the idea. The building blocks of a designed BMC are easy to copy, but this does not mean the business is the same. For external purposes the organization is not giving too much of information away. But on the other hand, for internal purposes a leader is necessary to communicate the end result for gaining support for the idea.</p>
Infrastructural Construction	<p>Not specifically mentioned in the interview.</p>

Table 32: External validity: Communicability

In all interviews the BMC is seen as a communication tool. Although, there are some nuances. For one respondent the BMC is a communication tool between business developers, the management and partners. Furthermore, it is a tool to structure the discussion with specialists, which might not have the full picture of a business model. However, the tool helps to communicate the end result, because a universal language is developed and everyone who has participated in designing the business model can easily reconstruct the idea. Furthermore, the BMC is helping to compare different business models because the structure is the same. moreover, one respondent mentioned that the BMC is a tool to talk about (Dutch: praatplaat). A final communication comment on the BMC is the difference in internal and external communication, because the level of detail is easily adjustable. However, for the internal and external communication a story is needed to explain the business model complete.

Combination with other tools

External validity: Combination with other tools	
Company id:	Result based on interview:
Construction Sustainability advice	Not specifically mentioned in the interview. There are some combinations made with the BMC. For example, 'Klantwaarde generator', which is from a German company. Is a popular tool and it helps to identify your Value Proposition. Furthermore we use Brain Bricks, an association game which benefits creativity. And finally, the context analysis, from the book 'Omgevingsanalyse'. It looks like the Five-Forces model by Porter, and it adds competitors and other environmental influences to the business model.
Innovation management It integrator Sustainability consultant	Not specifically mentioned in the interview. There are several tools which can be used when working with the BMC. For example the pain and gain diagram, this tool is beneficial for the Customer Segment: which pains and gains are important for a customer? By making a sort of personas, the pains and gains of the customer can be identified. On that basis creativity can be fed by having another perspective on new business development. Normally the focus is too much on the left side of the BMC, now they are forced to focus at the right side of the BMC. So, the participants need to come out of their comfort zones. Another tool is called Bricks. Bricks is an association game to come up with other combinations of ideas or aspects of an idea. Furthermore, drawing is not a real tool, but can be very clear and can lead to new ideas or insights.
Infrastructural Construction	Not specifically mentioned in the interview.

Table 33: External validity: Combination with other tools

The combination with other business model tools is directed at additional tools. The additional tools are used to fill-in the different building blocks of the BMC. In the interviews, two types of tools can be identified; creativity tools and context analysis tools. Creativity tools such as 'Klantwaarde generator', Brain Bricks and drawing are used. Furthermore, for context analysis, the Pains and Gains diagram, 'Omgevings'-analysis is used to add external influences to the BMC.

5.2.4 Pragmatic validity of the Business Model Canvas

The final validity point is pragmatic validity. In other words, this is the recognition of the results (Aken et al., 2007). The sub-characteristics point at if the result of the business model tool is beneficial to the organization and if they attribute success of the organization to the use of the business model tool.

Success of the organization

Pragmatic validity: Success of the organization	
Company id:	Result based on interview:
Construction	The BMC is for stabilizing and structuring the gut feeling of a

Sustainability advice	business developer, which makes it easier to communicate. The management can thus identify good or bad business models earlier. Because of the faster decision making the organization can become more successful.
	There are many aspects which are involved with the success of an organization, so the success cannot be fully contributed to the Business Model Canvas. Especially in a big organization the link between a tool and success of an organization is hard to establish.
	Innovation management
	The success of the organization depends on the person who works with the tool. The key to success is to work with concept techniques, work with the BMC, write the story properly and present the idea in the right moment. Next to that, it does not depend on the degree of detail if a BMC becomes successful or not. For example, an A4 with the BMC and some text might be better than a big book with a lot of pictures. So, it is hard to assign success of an organization to the BMC.
It integrator	Business model innovation is beneficial for the success of the organization. In business model innovation the BMC is indispensable. Simply, because I do not know other tools which cover the whole spectrum of business models.
Sustainability consultant	Not specifically mentioned in the interview.
Infrastructural Construction	For our project organization it is very beneficial to have a sort of methodology to gain simplicity in our business model. The BMC is very useful tool for this purpose. One side note is that when emphasizing too much on the BMC, other factors might be neglected. As with all models or methodologies which simplify problems more and better understandable, the real world is more volatile than the models or methodologies display and can structure. There are a lot of factors which need immediate adaptation and in our organization decisions are made on basis of past habits.

Table 34: Pragmatic validity: Success of the organization

Success of an organization cannot be contributed to the BMC, however, identification of a good or bad business model in an early stage and the BMC as attribute for a process manager, or the gained simplicity of a business idea might be beneficial for the success of the organization in combination with other factors.

Continuity

Pragmatic validity: Continuity	
Company id: Construction	Result based on interview: The BMC is not beneficial for the continuity. The BMC is only a line of reasoning; the total report with financial calculations will identify potential new businesses and will support the continuity of the business indirectly.
Sustainability advice	Yes, the BMC is one point which is beneficial to the competitiveness and performance, because it helps to gain

	<p>new perspective on a company. Due to the financial crisis and in my opinion the new equilibrium, companies need to innovate. This tool helps the organization to innovate So the BMC helps for continuity of the business by adding new perspectives. To be honest we are not innovating the way the BMC is proposing; business model innovation. The BMC is more used to structure (technical) ideas and is not really about innovating business models. Furthermore, the organization is not structured in a different way than it was before based on the BMC.</p>
Innovation management	<p>Continuity, by always using the BMC, you will become better in it. You know which aspects you have to take into account which in my opinion is beneficial for continuity. It is hard to have Key Performance Indicators on success, it is hard to identify a sustainable innovation and it is even harder if the development process is based on the innovation funnel, BMC, or other source in our organization.</p>
It integrator	<p>If an organization adapts and accepts the methodology of the BMC and criticizing their own business model it benefits to maintain competitiveness and performance. Because of facing disruptive innovations in the environment, before they occur. I do not know other models give this overview, so when you do not use the BMC you will have a vague overview of documents. In my opinion competitiveness and performance are influenced by the BMC. However, the role of business model innovation is essential; the BMC is an important part in this business model innovation.</p>
Sustainability consultant	<p>For competitiveness and maintaining performance a lot of canvasses are needed. The organization can be designed in one business model, but in my opinion the BMC is more focused on products. For the organization specific BMC it is a lot of work to outline all the details, in our organization we use position papers for this purpose. However, specifying the Value Proposition might be beneficial.</p>
Infrastructural Construction	<p>Not specifically mentioned in the interview.</p>

Table 35: Pragmatic validity: Continuity

There is no clear view if the BMC is beneficial for the continuity, in terms of competitiveness and performance, of the organization. Some indirect benefits are given in the interviews. The BMC provides a new perspective on looking at the organization. Technological innovations (or products) it is easier to structure a business around it. Business model innovation is essential for maintaining competitiveness and performance the BMC is an important part in it.

Impact of the business model tool on the organization

Pragmatic validity: Impact of the business model tool on the organization	
Company id:	Result based on interview:

Construction	Over time the BMC is getting more embedded in the organization. The management demands a BMC in combination with an extensive financial calculation when asking for permission to develop the business model further.
Sustainability advice	I do not think the BMC has impact on the structure of the organization. The tool is used for idea generation and for coming to new insights. Possibly on the long run this might be the case. In tenders we use the BMC in a custom version. We use this tool to centralize the customer instead of the technology, which we normally do. To better understand the customer and add creativity, the score of the public tender might be more positive. We structure the tender by the custom version of the BMC, so the organization is not structured by the BMC but the tender process is structured like this.
Innovation management	Not specifically mentioned in the interview.
It integrator	In our organization the BMC has no impact on the organization. But that has nothing to do with the BMC; it is because of our culture the BMC has no impact on the organization. In other organizations the BMC is structuring the organization. For example, in big innovative companies, such as: 3M, Nestle and, Siemens. These big organizations traditionally have R&D departments and are always searching for new business development methods.
Sustainability consultant	The BMC has no impact on the structure of the organization. At maximum it is beneficial for structuring of a diverse group of people which is developing a business model.
Infrastructural Construction	The BMC does not really have impact on our organization, the business plans that exist at the moment are not structured like the BMC. The business models are made as it has been done for over 10 years by the same management. In coming years there might be an option that the business models will be structured like the BMC. The separation of different building blocks in an early stage of development is essential, now we work with a confrontation matrix which based on analysis of the organization. For the future the challenge is to adapt the BMC in our business model development stages of the organization. A big challenge is the amount of technicians in the management of the organization, they are technically oriented and not business oriented. Which makes it harder to communicate and discuss aspects of a business model?

Table 36: Pragmatic validity: Organizational impact of the business model

There is no consensus about the impact of the BMC on the whole. However, the BMC has no impact on the whole organization; the BMC has impact on project organizations which develop business models. Two of the respondents expect that there is a chance for the BMC to structure the whole organization.

Financial calculations

Pragmatic validity: Financial calculations	
Company id:	Result based on interview:
Construction	Good explanation and room for calculations are missing in the BMC. Additional calculations are needed.
Sustainability advice	During the development information is added and specified, for example financial calculations. However, good financial model or method of calculating is lacking in the BMC. This should be mentioned more specifically in the book of the BMC.
Innovation management It integrator	Not specifically mentioned in the interview.
Sustainability consultant	People struggle with the financial calculations. It is not clear how to structure, fill-in and calculate the financial details. The main question regarding the profit potential, as the cost, is if this is the right place for an exploitation calculation. In my opinion not, because it has to be calculated in a later stage.
Infrastructural Construction	The financial calculations are not used during the process of developing a new business model, because all the building blocks should be filled except the financial calculations to have new and creative business models. The first part of the process is more about the 'gut feeling'; what the customer wants and what you need to full fill the demand. To funnel ideas more, financial calculations can be made for the feasibility, but if it is not feasible you do not need to throw away the whole BMC. You go back and try to adjust it so the financial calculations fits.
	Not specifically mentioned in the interview.

Table 37: Pragmatic validity: Financial calculations

The financial calculations in the BMC are a major discussion point for the interviewees. Limitation is about the ambiguity what should be included in the BMC and how to structure it. The BMC is lacking room and methodology for financial detail. However, as proposed by interviewees, the financial calculations can be included later on in the development of the business model, for example as criteria for funneling. The first step is to capture the 'gut feeling' about an idea. Extensive financial calculations can be neglected.

5.3 Reliability of the Business Model Canvas

A research is reliable when the results are independent and if the results of the research can be replicated in other research with other characteristics (Swanborn, 1996a; Yin, 2003). To analyze the business model tool, the internal consistency and stability of outcome is of relevance. Therefore sub-criteria and questions are aimed at if the result is stable of time and if the result is replicable.

Stable results

Reliability: Stable results	
Company id:	Result based on interview:
Construction	When filling in a second BMC with the same business idea, it will not give the same end result. Focus and perspective have changed over time because of additional experience and gained knowledge on a specific topic.
Sustainability advice	Not specifically mentioned in the interview.
Innovation management	Not specifically mentioned in the interview.
It integrator	It depends on the maturity of the organization if the BMC is comparable when filled in twice for the same idea. If an organization is mature chances on variations are less then with startup companies. Startup companies think more out of the box. Mature organizations have more experience and that might result in converging topics.
Sustainability consultant	Probably the output of the business model will not be the same when doing it twice, because when having another meeting other people will participate and have other influences on the business model. And when having a workshop with the same people it will not be the same because people may interact differently at another moment.
Infrastructural Construction	Not specifically mentioned in the interview.

Table 38: Reliability: Stable results

For two out of three respondents the BMC will not be the same if the BMC is filled in twice. Focus, perspective, time and other influences such as another meeting with other participants will change the input of the participants. Furthermore, the BMC is a product of the cooperation between people, when other people are added, or the same people have more experience the input will may change which result in a different BMC.

Replicability of results

Replicability: Replicability of results	
Company id:	Result based on interview:
Construction	It has to be easy to follow the line of reasoning; otherwise you do not need a tool.
Sustainability advice	Not specifically mentioned in the interview.
Innovation management	Not specifically mentioned in the interview.
It integrator	If the BMC is filled in properly, the BMC will be filled in comparable to the first business model and is understandable for everyone. That is what it is meant for. However, the topics which are discussed during the group process will not be mentioned in the BMC. You cannot reproduce them; this may give differences in interpretation.

Sustainability consultant	If someone else then you designs the same business model, the line of reasoning is not easy to follow, if only the BMC is provided. Because next to canvas, a story is needed. After explaining the story ,the line of reasoning in a BMC will be clear.
Infrastructural Construction	Not specifically mentioned in the interview.

Table 39: Replicability: Replicability of results

The analysis on the replicability of the result of the BMC is twofold. One, the line of reasoning should be very easy and so this can be replicated easily. However, second, it is hard to replicate the story behind the building blocks. Difference in interpretation may occur. So, based only on the filled-in BMC the business model will not be easily replicated, a story is needed to replicate the full line of reasoning of the BMC.

5.4 Controllability of the Business Model Canvas

Controllability in the analysis the tool is if the process of designing the business model is controllable. Questioned is if the decisions and assumptions are noted during the process.

Decisions

Controllability: Decisions	
Company id: Construction	Result based on interview: The decisions are based on human, equipment and financial resources. And the use of human resources is depending on the level of complexity of the idea under development.
Sustainability advice	Not specifically mentioned in the interview.
Innovation management	The decisions are made by the organization. If someone pitches an idea to a room of adopters, and no adopter is willing to participate or invest in the idea, it is not a good idea for our organization. The idea will be killed. This organization does not have money specially for innovations. This is on purpose, because if the organization is not adding value to the idea, it is not a good idea. The organization may be not ready for it; the idea owner can present his idea after two years or so. There is another option to invest in the idea, namely, venture capitalist. At the moment there is no innovation running on venture capital. But maybe in the future it might be an option. This strategy we use to go in a certain direction based on the power of the organization. According to management this is a good strategy. But we could be wrong.
It integrator	The decisions and assumptions to design the BMC are depending on the responsibilities and function of the participants. In other words it depends on their reference framework. Furthermore, experience is very important in designing a new business model. Because of this experience you can make different combination for different objectives.

Sustainability consultant	The foundation to make decisions for the BMC is an environmental analysis, where the aim is on trends at macro, meso and micro level. It is also important to identify the potential competitors and possible partners. Next to this a big source in business model development is the 'gut feeling'.
Infrastructural Construction	Not specifically mentioned in the interview.

Table 40: Controllability: Decisions

The decisions are based on different sources. The Construction Company stated that the decisions are based on human, equipment, financial resources as criteria. Sustainability Consultant mentioned decisions are based on environmental analysis; however, a big source of the business model development is the gut feeling. Furthermore, in the organization of the Innovation Management Company, the emphasis of decision to execute a business model is based on the interest of the organization in an idea. Is the business model not adopted, the business model will be killed. So, decisions are based on different sources, the BMC is not stimulating to make decisions based on specific criteria.

Assumptions

Controllability: Assumptions	
Company id: Construction	Result based on interview: Assumptions are needed to make decisions about designing an initial business model. After approval of the management the assumptions need to be researched.
Sustainability advice	Not specifically mentioned in the interview.
Innovation management	Not specifically mentioned in the interview.
It integrator	Sometimes assumptions need to be made. Not all the assumptions can be tested during one BMC workshop. This is not immediate a problem because assumptions are based on experience. So, the assumptions are already tested in practice. Assumptions about the future are off course tricky. You are not able to fill-in the future. However, assumptions are often about the chances of success. Therefore, awareness is needed for wrong assumptions which are based on experience and about valuating assumptions. There is a chance that the customers expect or value something else. To cover strategic choices and assumptions you need to tell a story next to the filled-in BMC.
Sustainability consultant	Not specifically mentioned in the interview.
Infrastructural Construction	Not specifically mentioned in the interview.

Table 41: Controllability: Assumptions

Assumptions are needed during the process of designing a business model based on the BMC. During the process assumptions should be investigated. However, awareness should be given to the source of the assumptions; assumptions are based on experience, mentioned by the IT Integration Company and are about the chances of success. Business model designers should be aware that the assumptions are covered in the story next to the BMC.

Argumentation

Controllability: Argumentation	
Company id:	Result based on interview:
Construction	The sources for making decisions and assumptions are not documented in the BMC but in a side document. This will keep the BMC clear.
Sustainability advice	Not specifically mentioned in the interview.
Innovation management	Not specifically mentioned in the interview.
It integrator	I do not note the assumptions; I only discuss them and critically assess them. If the business model based on the BMC is developed to a business, these assumptions should be investigated. In my opinion the BMC is not motivating to mention the assumptions. It is depending on the level of experience of the process leader or facilitator, if these are listed.
Sustainability consultant	It is very hard to structure the administration of the design process of the BMC. Every workshop or meeting new BMCs are created, new paintings are produced and so on. The big question is how to manage this. The BMC is not helping in to administer the process and note the assumptions and decisions. And I have not found a methodology yet. With a big group continuous alignment is needed between sessions and between participants. An option is to send after every workshop session the latest version of the BMC.
Infrastructural Construction	Not specifically mentioned in the interview.

Table 42: Controllability: Argumentation

The BMC is not motivating users to note decisions and assumptions made during the process. However, the Construction Company annotated sources, decisions and assumptions in a side document. In contrary to the Construction Company, the Sustainability Consultant is experiencing trouble with structuring the argumentation of the decisions and assumptions. To conclude the BMC is not motivating or providing a structure to provide argumentation about the decisions, sources and assumptions made during the development process.

5.4 Conclusion validity, reliability and controllability of the Business Model Canvas

5.4.1 Conclusion Validity of the Business Model Canvas

Based on the result of the six interviews conclusion about the different validity types are extracted. The conclusions are about the strengths and limitations of the Business Model Canvas.

Conclusion construct validity of the Business Model Canvas

By analyzing the results of the interviews four important points can be recognized. The construct of Value Proposition is good; however based on some interviews suggested that Social Value is missing. They state that it is important to broaden the goal of a business model based on the Business Model Canvas, for example Social Enterprises, Non-profit organizations or governmental organizations. Furthermore, issues regarding the overlapping building blocks Customer Relationships and Channels, and Key Activities and Key Resources are mentioned. The way the interviewees design the Customer Relationships and Channels are overlapping and intertwined. This leads to confusion about or neglecting of a building block. For Key Activities and Key Resources the same problems occur, the distinction between the two building blocks is not clear and the necessity is doubted. Next to the overlapping character of those building blocks, the financial building blocks Cost Structure and Revenue Streams lead to some critiques. There is not a clear consensus about the limitations of these two building blocks. However, they are worth mentioning: the lack of details of calculations, the phase of application of the calculations and the time element is missing in the BMC to calculate proper financials.

Furthermore, Competitive strategy is mentioned as a missing building block in the BMC. There is consensus between the interviewees that competitive strategy should be taken into account to face external risks such as competition, market influence and environmental forces. As mentioned, this should be done by making a story around the business model which covers the aspects of Competitive strategy or an additional building block.

Conclusion internal validity of the Business Model Canvas

The interaction between the Business Model Canvas and the organization is investigated in this paragraph about internal validity. Overall the interaction between the BMC and the organization is good. The tool is easy to understand after some explanation and is easy to operate. The visual representation of the tool is very strong which results in a lot of possibilities in using the tool from different perspectives or with different goals. The tool is beneficial for alignment in a business model development process. However, some limitations and remarks are mentioned. The tool is not beneficial for creativity because the developers need to think in building blocks. On the contrary, a benefit of the tool is that it structures the creative thoughts, which helps to communicate the creativity.

Conclusion external validity of the Business Model Canvas

The external validity is the way how to generalize the content of the business model tool to other people and if the BMC fits to additional tools. The communicability of the tool is a strong point of the BMC. The tool is used for communication of the business model to managers and partners. Due to the universal language it can be generalized from specialist to business developers. Creativity tools such as 'Klantwaarde generator', Brain Bricks and simple drawing exercises are used. Furthermore, for context analysis, the Pains and Gains diagram and the 'Omgevings'-analysis is used to add external influences to the BMC.

Conclusion pragmatic validity of the Business Model Canvas

Pragmatic validity in terms of validating a business model tool is about the recognition of the results. The recognition of the results is tested with the successfulness, the continuity and the impact on the structure of the organization. There are some hints that the Business Model Canvas is beneficial to the success and continuity of the organization. However, it cannot be stated that the BMC has direct impact on these variables. The simplicity and the structural way of making business models might be beneficial according to the interviewees. Furthermore, the structure of the whole organization is not influenced through the BMC at the organization of the respondents. However, two respondents see opportunities for the BMC to do so in the future. In business model developments groups the BMC has impact on the structure of the organization of the group as the BMC is used as leading tool of communication.

In recognition of the results, a big limitation is identified on the financial building blocks of the BMC. It is not clear how to calculate the financials. The interviewees think the calculations can be provided later in the development process, because at first it is important to structure the 'gut feeling' of the idea.

5.4.2 Conclusion Reliability of the Business Model Canvas

In terms of stable results, the Business Model Canvas does not lead to the same results when filling in the BMC for the second time with the same goal. Factors such as different focus, perspective and time have influence on what to fill in the different building blocks. This does not mean that the reliability is an issue. The filled-in BMC is easy to replicate. However, you need to know the 'story' behind the business model to replicate the building blocks in the right perspective.

5.4.3 Conclusion controllability of the Business Model Canvas

The Business Model Canvas is not providing a structure or motivates users of the BMC to administer the sources, assumptions and decisions. This lack of structure of administration leads to a low controllability of the developed business model.

5.4.4 Conclusion strengths and limitations of the Business Model Canvas based on the interviews

Based on the six interviews strengths and limitations has been identified in previous paragraphs. To provide a clear overview of the strengths and limitations

the following table is constructed. The main limitations are about; the Value Proposition and other purposes then profit generation, overlap and difference in detail of individual building blocks, external forces such as competition are not taken into account in the Business Model Canvas.

Strengths:	Limitations:
The construct around the Value Proposition is good with one remark. Which is mentioned in the limitations column.	Limitations regarding the Value Proposition is that it does not include Social Value. Therefore, non-profit and governmental organizations cannot be captured in the Business Model Canvas.
The visual representation of the Business Model Canvas is good. Consensus is recognized between the interviewees. This strength results in a lot of possibilities in using the tool from different perspectives and different starting points. This makes the tool easy to operate.	Overlap and intertwine of the building blocks Customer Relationships and Channels, and the overlap of Key Activities and Key Resources. This leads to confusion or not using one of the building blocks.
Overall the interviewees agreed on the benefit of the Business Model Canvas on the communicability of a proposed Business Model.	The lack of room in the building blocks Cost Structure and Revenue Streams for proper financial calculations. Also, the time element is missing.
The way of using the Business Model Canvas is easy to understand, however there are some remarks on individual building blocks. These are mentioned in the left side of this table.	Competitiveness is missing in the Business Model Canvas. For example, several interviewees mentioned a missing building block comparable with a Competitive Strategy building block which takes into account external factors such as risk, competition, market influence and other environmental forces.
In terms of creativity, a strength which can be attributed to the tool is the structural effect on the creative thoughts. This result in a clearer view which then can be communicated easier and alignment during the process can be established.	The Business Model Canvas in itself is not beneficial for creativity, because the designers of a business model are forced to think in the nine building blocks.
	The Business Model Canvas does not provide structure or motivation to administer sources, assumptions and decisions. This results in a low controllability of design decisions afterwards.

Table 43: Strengths and limitations based on the Business Model Canvas

6. Discussion and recommendations

The study is aimed at the analyzing the Business Model Canvas for strengths and limitations. In this chapter the results are discussed and academic and practical implications are provided. At the end of this chapter research limitations and future research is outlined.

6.1 Results and discussion

In this research the main research question is: 'What are the strengths and limitations of the Business Model Canvas in the design and applications phases of a business model in practice?' To answer this research question, three sub-questions are used. The results of every sub-research question are discussed in this chapter and at the end the main research question is answered.

What are the strengths and limitations of the Business Model Canvas based on academic literature and alternative business models?

Based on the theoretical investigation of several academic articles, two strengths and one limitation are recognized. The Business Model Canvas is focused around the construct of value. One purpose of a business model is the mediator between a technology or idea with customers. In other words, a business model is capturing and delivering value to customers. The Business Model Canvas is based around this mediating principle and based on this it can be seen as strength. The second strong point is the coverage of the elements of business model in general. Based on different theories and academic articles, four elements are identified which are required in a business model. The Business Model Canvas covers the four elements value proposition, architecture of what a business is doing, architecture of the relation between firm and its exchange partners and financial aspects.

A limitation based on theoretical investigation is about the absence of strategy in terms of competition. The Business Model Canvas is an internally focused tool which is focusing on what a company delivers, how it will be delivered and what is necessary to make what the company is delivering. Competitive strategy is missing in these mechanisms of the business model tool. Based on theory the strategy and business models are highly related to each other (Brandenburger & Stuart, 1996), because the way of adapting to competition may lead to superior performance or under performance (Magretta, 2002).

Based on the alternative business models which do not all have academic roots, several strengths and limitations can be identified. The strong points are based on the visual representations and the structure of business models. Other business model tools are more or less visually the same. Furthermore, based on the alternative business models the centrality of value can be seen as a strong point of the Business Model Canvas, since other business models also have value as the central construct in business modeling.

Limitations based on analysis of the alternative models are about the exclusion of competition and other harms outside of the company. With not taking

competition into account, forces from other companies and their business models can be expected. The possible consequence being that the business will perform less.

Another limitation is recognized based on the Fluidminds and the Lean Canvas tool. In this tool more emphasis is on human resource and interaction of teams. By adding an extra building block 'Team and Values' and 'Unfair advantage' emphasis is also on the creators of a business model. This forces business model designers, next to the unique Value Proposition and other building blocks, to think about why the business model is going to work and why it is not easy to imitate or copy. In the Business Model Canvas emphasis is on the Value Proposition and ways how to capture and deliver value and less on the sources of value creation, such as experienced people and a high profile team.

A recurring limitation is the limited usability for different sorts of organizations. The Business Model Canvas is formed around profit generation. This excludes non-profit and governmental organizations. In other terms, the goal of the Business Model Canvas is fixed, it is about the exchange of value for revenue. Organizations which aim at other values such as Social Value cannot be designed with the Business Model Canvas. The limitation is therefore the exclusion of other purposes of a business model than the purpose of profit generation.

A last limitation is about different levels of detail. In the nine building blocks the level of detail is not equal. For example the Key Resources/Key Activities and Channels/Customer Relationships are more detailed than the other building blocks.

What are the strengths and limitations of the Business Model Canvas based on online discussions?

In the online review of discussions, different visions on the Business Model Canvas are found. A strength is the focus on value and the clear visual representation of important topics which are necessary to run a business. This is corresponding with the foregoing sub-research question. However, some of the limitations are overlapping with the former paragraph and some are new.

One limitation identified is the focus on profit making organizations therefore not useful for non-profit and governmental organizations. The same conclusion can be drawn as based on the alternative business models, that the purpose of the Business Model Canvas is directed at profit generation alone and not for other, for example social or governmental purposes.

Exclusion of competition is another important limitation which corresponds with the former sub-research question. According to online discussions, competition should be included because it is an essential part of the daily influences of a company. When not taking into account competition, a business model might not work. Because, for example the competition has a better value

proposition than the new business model of the company under design. The business model might not be feasible.

Furthermore, a limitation is directed at the execution of a business model designed with the Business Model Canvas. It is not clear how to start the business. This can be remedied, according to the online discussion, by making a story around the business model to explain relations and interaction between the individual building blocks.

Last limitation is the difference in detail of the individual building blocks. The resource, activity, channel and customer relationship blocks induce to higher detail than other building blocks

What are the strengths and limitations of the Business Model Canvas when applied to different cases in different organizations?

During the interviews there are several points mentioned about the strengths limitations of the Business Model Canvas. A clear consensus cannot be discovered, which also isn't the aim of this research. During the interviews strengths are attributed to the focus on value, the visual representation, usefulness and usability of the tool. A recurring strong point is the communication between managers, business model designers, customers and partners. The structure and simplicity results in better communication between different disciplines.

Interesting findings of limitations are about the exclusion of social values and the confusion about the building blocks Key Activities, Key Resources, Channels and Customer Relationships. A new finding based on the interviews is about the financial building blocks. It is not clear in what detail the calculations and in what stage of development it should be done. Based on the confusion about the level of detail and the difference between the building blocks. There could be suggested that the level of detail in the building blocks are not the same in every building block.

Furthermore, the competitive strategy is seen as a missing construct in the Business Model Canvas. External risks such as competition, market and other environmental factors are according to the interviewees not taken into account.

To answer the research question: "What are the strengths and limitations of the Business Model Canvas in the design and application phase?" the following table is constructed. In this table the recurring strengths and limitations are described based on triangular results. The strengths and limitations are found in the three different sources of information; theory/alternative business models, online review and case interviews.

Strengths:	Limitations:
A clear strength is identified about the centrality of value. The purpose of constructing a model to capture and	A clear consensus is recognized on the absence of external factors such as competition, market forces and other

<p>deliver value to customers is recognized and acknowledged by the three different methods.</p>	<p>external forces in the Business Model Canvas. The tool is internally focused which aims at what a company delivers, how it will be delivered and what is necessary to make what the company is delivering. Competitive strategy is missing in the elements of the Business Model Canvas, to cope with harms from outside of the company.</p>
<p>Based on the three methods, the four elements value proposition, architecture of what a business is doing, architecture of the relation between firm and its exchange partners and financial aspects are recognized as covering the business model construct.</p>	<p>A recurring limitation is the limited usability for different sorts of organizations. The Business Model Canvas is focused on Value Proposition in relation with profit generation. This excludes social or non-profit purposes of an organization.</p>
<p>During the interviews strengths are derived about the visual representation, usefulness in the organization, usability and simplicity of the Business Model Canvas.</p>	<p>In all three methods the individual building blocks are investigated and a repeating limitation is identified. Interviewees all mentioned the confusion about the building blocks Key Activities, Key Resources, Channels and Customer Relationships. This confusion can be explained by the different level of detail compared to the other building blocks.</p>
<p>The Business Model Canvas strength is the function as a communication tool between managers, business model designers, customers and partners. Because the structure and simplicity of the Business Model Canvas results in better communication between different disciplines.</p>	<p>A final limitation is directed at the interaction of teams and the value of the creator of the business model. This is not taken into account in the Business Model Canvas. When taken into account it may result in stimulating business model designers to think about why the business model is going to work and why it is not easy to imitate or copy, next to the unique Value Proposition.</p>

6.2 Practical implications

This research is not aimed at finding significant relations but at exploring strengths and limitations of the Business Model Canvas. The explored strengths and limitations can be used by business model designers and business model process managers to optimize the business models. The optimization of designing can be done in three ways. The first adaptation to the limitations is to adjust the Business Model Canvas by adding a 'Competition or Competitive Strategy' building block, merging 'Key Resources and Key Activities', merging 'Customer Relationships and Channels' and adding 'Social Value' to the 'Value Proposition' and adding 'Social Costs and Benefits' to the canvas. These

improvements cover the most important limitations of the Business Model Canvas. This adjustment may result in an over complete tool which might result in an unworkable tool. The adjustment also could have as negative effect that the strong points of the canvas are reduced. Strong points such as visual representation, usefulness in the organization, usability and simplicity.

The second way to cope with the limitations is to maintain the Business Model Canvas as it is. However, the business model designers and business model process managers take into account the limitations of the business model. During the group process, the project leader adjusts the way the participants look at the individual building blocks. For example at the Value Proposition building block, where the project manager should adapt what to fill in as a Value Proposition to the purpose of the organization. When the ambition is to start a non-profit organization, the value proposition should also include Social Value. During the whole process, the strategic intent of the organization under design should be reflected based on the limitations of the Business Model Canvas. To give another example, by taking competition into account, potential disappointment about already existing business models which do not exceed the value proposition of competitor's business models can be prevented. An additional market research should be performed to add the competition into the business model. This does not cover the whole competition factor because the way how to adapt and to outperform the market over time is not taken into account.

The third adaptation is to use another business model tool which is more aligned with the goals the business model designer is aiming for. Attention must be paid because these business model tools also may have limitations. Based on the comparison of the Business Model Canvas with alternative business model tools, the Lean Canvas and the Value Model Canvas cope with the most important limitations of the Business Model Canvas. More research and practical experience is needed to make statements about the use of the alternative business models.

Concluding, the Business Model Canvas is an interesting tool which has major impact in business practice. Alertness on limitations of a dominant business model tool should be a high priority of business model developers. This thesis has contributed to the alertness of the use of the Business Model Canvas. This alertness should be maintained with future improved business model tools.

6.3 Theoretical implication

Based on the theoretical chapter in this thesis a wide variety of definitions, purposes and recurring elements of business models and business model tools are outlined. The Business Model Canvas contributed to more consensus about theoretical issues regarding the definitions, purposes, elements and dimensions in business models. However, there is still not a common ideal type of business models. This research adds information on creating an ideal type of a business model by analyzing a business model tool. The Business Model Canvas is a step in the process of achieving the ideal approach. The strengths and limitations of

the Business Model Canvas should be taken into account when developing a new business model tool. For example, the construct of value, the competition and the difference in detail of the building blocks should be considered in addition to a more ideal type of business model tool.

Based on the conclusions in this thesis a business model tool should be constructed which maximizes the strengths and minimizes the limitations to strive for an ideal business model tool.

6.4 Limitations and suggestions for future research

In this paragraph several limitations on validity and reliability are addressed and future research is proposed.

The first limitation is about the exploratory nature of this research. Exploring a relatively new research field on strengths and limitations based on theoretical and practical investigation leads to a broad view of the topic. The wide aim of the research gives a lot of information but statements about relationships and causalities cannot be made. To investigate the topic in higher detail, empirical research should be conducted to find effects of the Business Model Canvas on specific topics.

Furthermore, a limitation is the small sample size of six interviews. Because of the limited time and the exploratory character of this research the decision is made to have this limited amount of interviews. This leads to a low external validity of the results. To cope with this limitation, future research is recommended to investigate different strengths and limitations on a larger scale directed at specific strengths and limitations.

Other limitations are the non-standardized research methods. It is difficult to repeat the research because of the non-standardized character. The online research method is in itself non-standardized based on the high volatility of information streams of online discussions. Furthermore, the multiple case-method is conducted through interviews. These interviews are based on open ended questions and non-validated criteria, which endorses the exploratory aim of this research. However, it is difficult to repeat the research. Furthermore, it is difficult to generalize from case studies, which influences the scientific value of this method (Flyvbjerg, 2006). Due to the intensive use of empirical evidence multiple case studies can also lead to conclusions that comprise 'overly complex theory' (Eisenhardt, 1989, p. 547) Therefore, conclusions lack simplicity of an overall perspective because they are rich in detail.

Researchers in multiple case studies may have a bias to verifications of their one claim on the topic. To cope with these limitations of reliability, the reliability is supported by 'member checks' (Swanborn, 1996b). These member checks are used to test the stability of the results of the interviews (Swanborn, 1996a), by sending the written results back to the respondent. When the respondents agree with the research findings of the interview the interpretation gains reliability (Van

Aken & Andriessen, 2011). All the interviewees confirmed the findings, some after some adjustments. The reliability of the results is improved.

Suggestions for future research

Future research should be aimed at optimizing business model tools which maximize the strengths and adapt to the limitations of the Business Model Canvas. To come to an ideal type of business model and simultaneously to an ideal business model tool, in dept case research of different successful business models should be done. This research should be focused around the elements used in the business model which are seen as essential and as important for the success. A research question could be: 'What are the essential elements of a business model and what kind of impact do the elements have on the success of a business model?'. Based on this research of a couple of successful business models, an improved business model tool can be constructed, which takes into account the strengths and limitations of this research.

Another suggestion for future research is the success of a business model in relation to the Business Model Canvas over time. When designing a business model the Business Model Canvas focuses on a business model which will work at a certain point in time. Volatility of factors around and inside an organization can result in a changed business model. A research question could be: 'What could be improved in business model tools to adapt better on internal and external changes?'.

References

- Aken, J. v., Berends, H., & Bij, H. v. (2007). *Problem Solving in Organizations*: Cambridge: Cambridge University Press.
- Amit, R., & Zott, C. (2001). Value creation in e-business. *Strategic Management Journal*, 22(6-7), 493-520.
- Anderson, J. C., & Narus, J. A. (2004). *Business Marketing Management – Understanding, Creating, and Delivering Value*. 2.
- Atkinson, R., & Flint, J. (2001). Accessing hidden and hard-to-reach populations: Snowball research strategies. *Social research update*, 33(1), 1-4.
- Babbie, E. (2010). *The practice of social research*: CengageBrain. com.
- Baden-Fuller, C., & Morgan, M. S. (2010). Business models as models. *Long Range Planning*, 43(2), 156-171.
- Ballon, P. (2007). Business Modelling as the Configuration of Control and Value. *20th Bled eConference, Bled, Slovenia*.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.
- Biernacki, P., & Waldorf, D. (1981). Snowball sampling: Problems and techniques of chain referral sampling. *Sociological methods & research*, 10(2), 141-163.
- Brandenburger, A. M., & Stuart, H. W. (1996). Value-based Business Strategy. *Journal of Economics & Management Strategy*, 5(1), 5-24.
- Casadesus-Masanell, R., & Ricart, J. E. (2010). From strategy to business models and onto tactics. *Long Range Planning*, 43(2), 195-215.
- Chesbrough, H. (2010). Business model innovation: opportunities and barriers. *Long Range Planning*, 43(2), 354-363.
- Chesbrough, H., & Rosenbloom, R. S. (2002). The role of the business model in capturing value from innovation: evidence from Xerox Corporation's technology spin-off companies. *Industrial and corporate change*, 11(3), 529-555.
- Chesbrough, H., Vanhaverbeke, W., & West, J. (2005). Open innovation: a new paradigm for understanding industrial innovation. *Open innovation: researching a new paradigm*, 1-12.
- Dyer, W. G., & Wilkins, A. L. (1991). Better stories, not better constructs, to generate better theory: a rejoinder to Eisenhardt. *Academy of management review*, 16(3), 613-619.
- Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of management review*, 532-550.

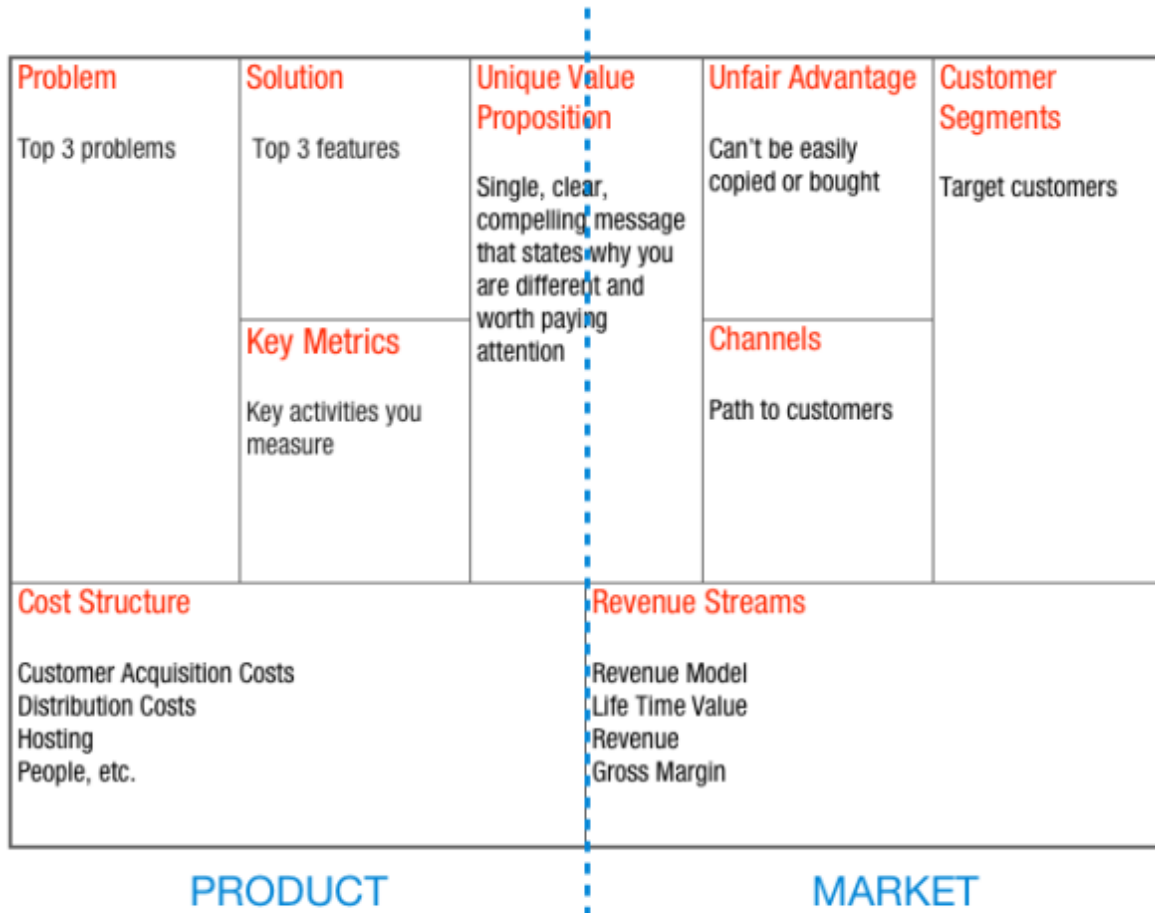
- Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: opportunities and challenges. *Academy of Management Journal*, 50(1), 25-32.
- Flynn, B. B., Sakakibara, S., Schroeder, R. G., Bates, K. A., & Flynn, E. J. (1990). Empirical research methods in operations management. *Journal of operations management*, 9(2), 250-284.
- Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative inquiry*, 12(2), 219-245.
- Foss, N. J., Klein, P. G., Kor, Y. Y., & Mahoney, J. T. (2008). Entrepreneurship, subjectivism, and the resource-based view: toward a new synthesis. *Strategic Entrepreneurship Journal*, 2(1), 73-94.
- Gerring, J. (2012). *Social science methodology: A unified framework*: Cambridge University Press.
- Hart, C. (2001). *Doing a literature search: a comprehensive guide for the social sciences*: Sage.
- Magretta, J. (2002). Why business models matter. *Harv Bus Rev*, 80(5), 86-92, 133.
- Mansfield, G., & Fourie, L. (2004). Strategy and business models-strange bedfellows? A case for convergence and its evolution into strategic architecture. *South African Journal of Business Management*, 1.
- Mason, K., & Spring, M. (2011). The sites and practices of business models. *Industrial Marketing Management*, 40(6), 1032-1041.
- McDermott, C. M., & O'Connor, G. C. (2002). Managing radical innovation: an overview of emergent strategy issues. *Journal of product innovation management*, 19(6), 424-438.
- McGrath, R. G. (2010). Business models: A discovery driven approach. *Long Range Planning*, 43(2), 247-261.
- Merriam, S. B. (2002). Introduction to qualitative research. *Qualitative research in practice: Examples for discussion and analysis*, 3-17.
- Morris, M., Schindehutte, M., & Allen, J. (2005). The entrepreneur's business model: toward a unified perspective. *Journal of business research*, 58(6), 726-735.
- O'Reilly III, C. A., & Tushman, M. L. (2008). Ambidexterity as a dynamic capability: Resolving the innovator's dilemma. *Research in organizational behavior*, 28, 185-206.
- Osterwalder, A., & Pigneur, Y. (2010). *Business model generation: a handbook for visionaries, game changers, and challengers*: Wiley.

- Osterwalder, A., Pigneur, Y., & Tucci, C. L. (2005). Clarifying business models: Origins, present, and future of the concept. *Communications of the association for Information Systems*, 16(1), 1-25.
- Popay, J., Roberts, H., Sowden, A., Petticrew, M., Arai, L., Rodgers, M., . . . Duffy, S. (2006). Guidance on the conduct of narrative synthesis in systematic reviews. *A product from the ESRC methods programme. Version, 1.*
- Richardson, J. (2005). The business model: an integrative framework for strategy execution. *Available at SSRN 932998.*
- Santos, J., Spector, B., & Van der Heyden, L. (2009). Toward a theory of business model innovation within incumbent firms. *INSEAD, Fontainebleau, France.*
- Sarasvathy, S. D. (2009). *Effectuation: Elements of entrepreneurial expertise*: Edward Elgar Publishing.
- Seddon, P. B., & Lewis, G. P. (2003). *Strategy and business models: What's the difference*. Paper presented at the 7th Pacific Asia Conference on Information Systems, Adelaide, Australia.
- Seddon, P. B., Lewis, G. P., Freeman, P., & Shanks, G. (2004). The case for viewing business models as abstractions of strategy. *Communications of the association for Information Systems*, 13(1), 25.
- Siggelkow, N. (2007). PERSUASION WITH CASE STUDIES. *Academy of Management Journal*, 50(1), 20-24.
- Simons, H. (1996). The paradox of case study. *Cambridge Journal of Education*, 26(2), 225-240.
- Swanborn, P. G. (1996a). Case study's: wat wanneer; hoe? *None.*
- Swanborn, P. G. (1996b). A common base for quality control criteria in quantitative and qualitative research. *Quality and Quantity*, 30(1), 19-35.
- Teece, D. J. (2010). Business models, business strategy and innovation. *Long Range Planning*, 43(2), 172-194.
- Van Aken, J., & Andriessen, D. (2011). *Handboek ontwerpgericht wetenschappelijk onderzoek: wetenschap met effect.*: Boom Lemma uitgevers.
- Weill, P., Malone, T. W., D'Urso, V. T., Herman, G., & Woerner, S. (2005). Do Some Business Models Perform Better than Others? A Study of the 1000 Largest US Firms. *Sloan School of Management Massachusetts Institute of Technology.*
- Woodside, A. G., & Wilson, E. J. (2003). Case study research methods for theory building. *Journal of Business & Industrial Marketing*, 18(6/7), 493-508.

- Yin. (1981). The Case Study Crisis: Some Answers. *Administrative Science Quarterly*, Vol. 26, 58-65.
- Yin. (2003). Case Study Research: Design and Methods. . 3rd Edition. Thousand Oaks, CA: Sage Publications.
- Zott, & Amit, R. (2008). The fit between product market strategy and business model: implications for firm performance. *Strategic Management Journal*, 29(1), 1-26.
- Zott, Amit, R., & Massa, L. (2010). The business model: Theoretical roots, recent developments, and future research. *IESE Business School-University of Navarra*, 1-43.
- Zott, Amit, R., & Massa, L. (2011). The Business Model: Recent Developments and Future Research. *Journal of Management*, 37(4), 1019-1042. doi: Doi 10.1177/0149206311406265

Appendix 1: Alternatives of the Business Model Canvas

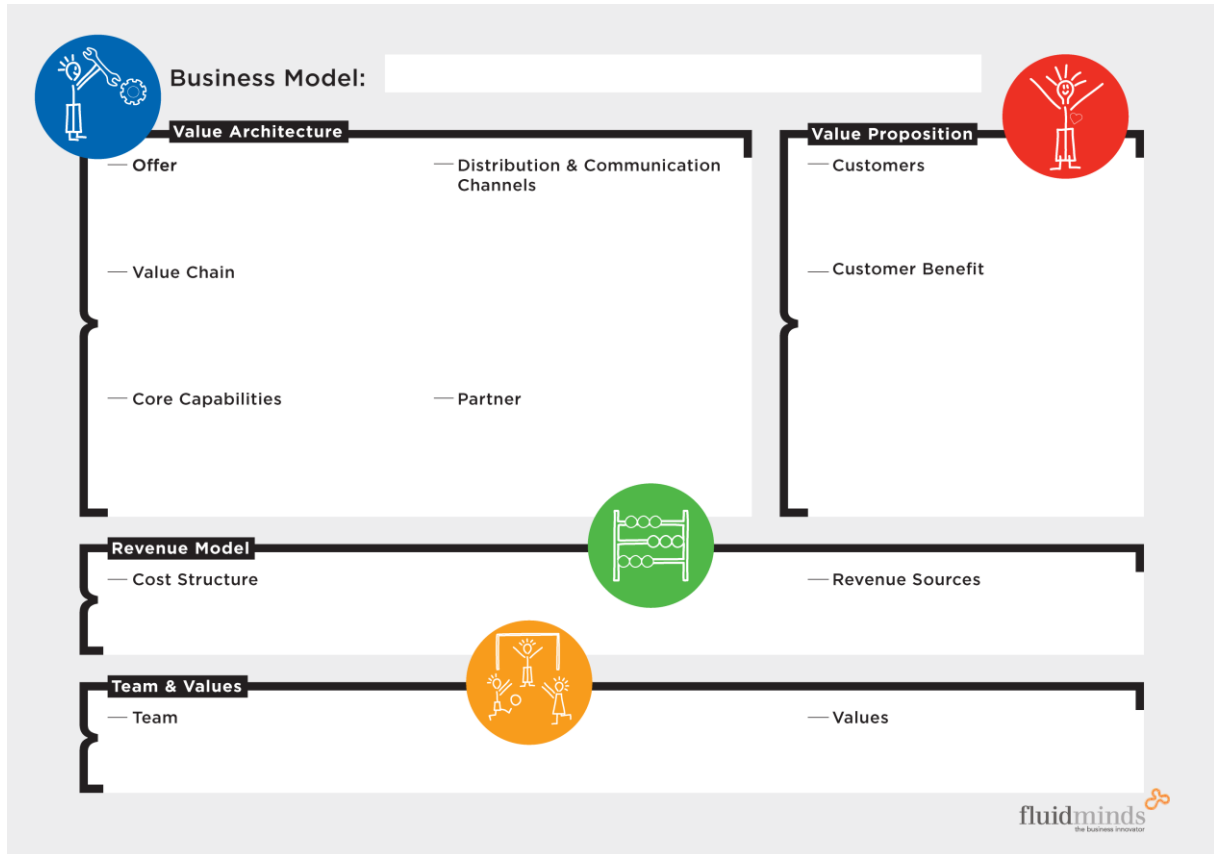
The Lean Canvas



Lean Canvas is adapted from The Business Model Canvas (<http://www.businessmodelgeneration.com>) and is licensed under the Creative Commons Attribution-Share Alike 3.0 Un-ported License.

Source: <http://practicetrumpstheory.com/wp-content/uploads/2012/02/leancanvas.png>

The Fluidminds Business Model Canvas



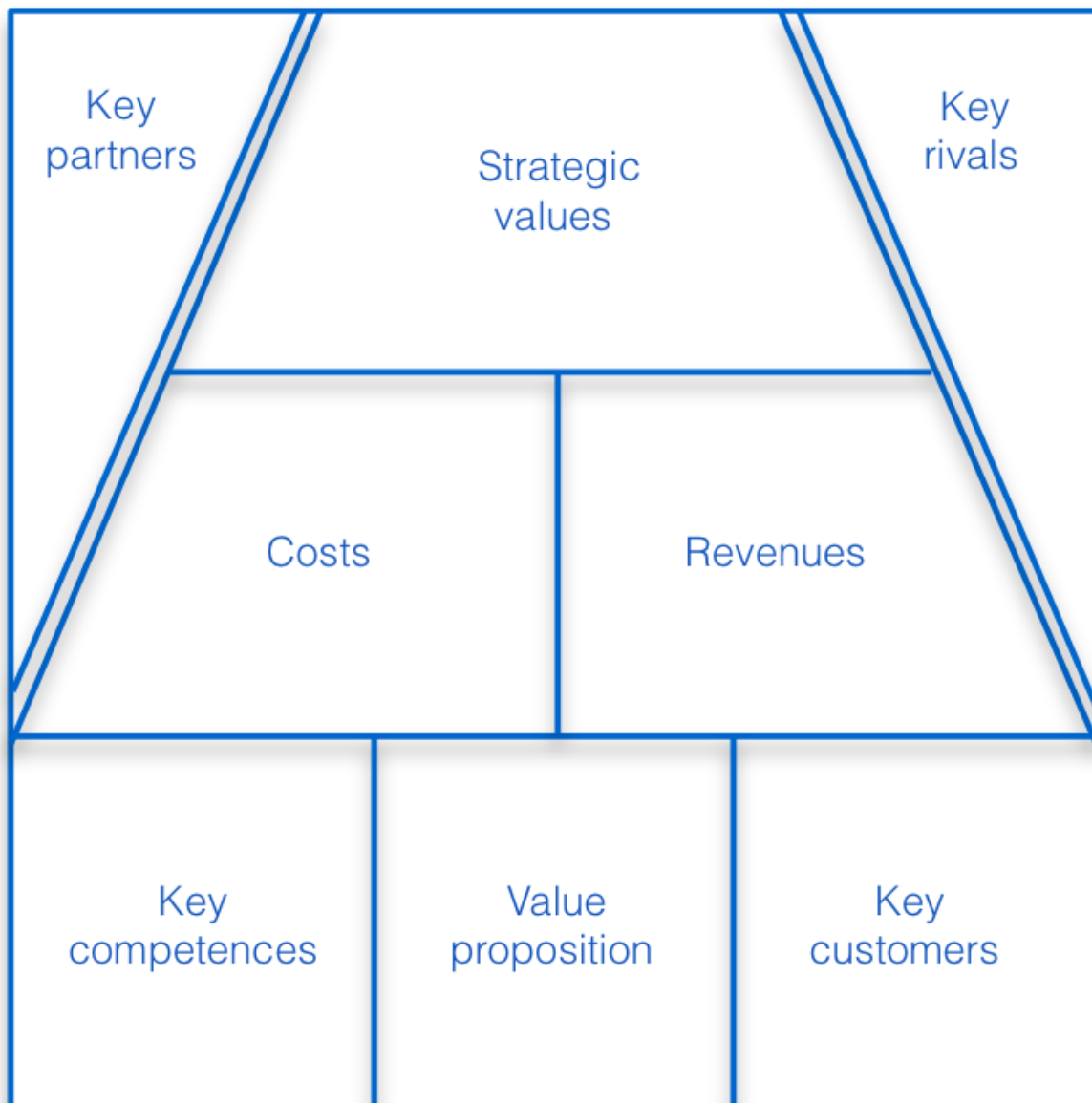
Source: http://blog.business-model-innovation.com/wp-content/uploads/2011/01/Empty_Business_Model_Canvas.png

The IBM's Component Business Model

The Component Business Model						
	Business Administration	New Business Development	Relationship Management	Servicing and Sales	Product Fulfillment	Financial Control and Accounting
Direct	Business Planning	Sector Planning	Account Planning	Sales Planning	Fulfillment Planning	Portfolio Planning
Control	Business Unit Tracking	Sector Management	Relationship Management	Sales Management	Fulfillment Planning	Compliance Reconciliation
	Staff Appraisals	Product Management	Credit Assessment			
Execute	Staff Administration	Product Delivery	Credit Administration	Sales	Product Fulfillment	Customer Accounts
	Product Administration	Marketing Campaigns		Customer Dialogue	Document Management	General Ledger
				Contact Routing		

Source: http://www.michael-richardson.com/rup_classic/extend.bus_model/guidances/concepts/business_component_modeling_527F8FC0.html

The Value Model Canvas



Source: <http://kraaijenbrink.com/wp-content/uploads/2012/07/organizational-value-canvas.png>

Appendix 2: Interview protocol

Open interview protocol for thesis critically assessing Business Model Canvas by Alexander Osterwalder

Interviewer: Bastian Coes

Institution: University of Twente, Faculty 'Management en Bestuur'

Duration: 2 hours

Data recording: Voice recorder and paper

Confidentiality: No specific links will be mentioned between companies and opinions in the thesis.

Member check: Confirmation of the results afterwards (by e-mail).

Aim of interview:

The aim of this interview is to analyze how organizations make business models based on business model tools. What are the experiences and where they use it for and why. Are there positive and negative points when using business model tools. The result of the interviews will be a representative view of opinions about the BMC in practice.

Protocol:

1. Introduction of Bastian Coes and the thesis.
 2. Introduction of interviewee background and company
 3. Optional: doing a small design case based on the BMC of the visiting organization
 4. Questions regarding business model tool in the organization
 5. Further comments interesting for thesis
 6. End of interview
1. Introduction of Bastian Coes and the thesis
 - a) Thank you for your time to participate in the interview.
 - b) Short introduction about study and previous studies.
 2. Introduction of interviewee background and company
 - a) Please introduce yourself
 - a) What is your position?
 - b) How long have you been in your present position?
 - c) How long have you been working in this organization?
 - d) What is your highest educational degree?
 - e) What is your field of study?
 - f) What is your organization doing? (follow up: mission, vision, core business)
 - g) How is the structure of the organization in terms e.g. holding structure?
 - h) How does the organization see its future?
 3. Filling in the BMC based on your organization.
 - a) To what extent do you know the BMC of Alexander Osterwalder?
 - b) Would you like to have a small case about a company specific business model?
 - i. Explain the Canvas in short
 - ii. Fill in the Canvas based on your organization
 - iii. Discuss the designed Canvas of your organization
 - c) How is the business model guiding the organization?
 - d) Give an example of a business model in which customers participated? Does the tool help you with customer participation?
 - e) Explain the process based on the business model tool of a developed business model in your organization?
 4. Questions regarding business model tools in the organization and questions regarding the business model tool itself.
 - a) What is your general opinion about the business model tool?

- b) To what extent does the organization use the business model tool?
- c) To what extent has the business model tool impact on the structure of the organization?
- d) Where all parts of the tool clear to you and if not what where the ambiguities?
- e) What do you think of the visual representation of your business model?
- f) What do you think about the efficacy of the tool?
- g) Explain if the tool helps to be creative?
- h) What kind of other tools did you used next to the business model tool and how did this go?
- i) How is the communication of the business model coordinated within the organization?
- j) In what way did the business model tool help your organization with its continuity?
- k) In what way did the tool help you with the when making a good business model?

- | | |
|-----------------------------|------------------------------|
| a. Value proposition | h. Business model innovation |
| b. Customer segment | i. Cost Structure |
| c. Distribution channel | j. Resources |
| d. Customer relationship | k. Activities |
| e. Profit potential | l. Partnerships |
| f. Competitive strategy | m. Financial calculations |
| g. Technological innovation | |

- l) How helped the tool to make your organization successful?
- m) What do you think is missing in the tool?

5. Further comments interesting for thesis and summary

- a) Do you have other comments, critics or positive points of the business model tool?
- b) Where the questions and discussions in this interview clear to you?
- c) Where all topics clear to you? If not, which one?
- d) Did there occur problems during the interview? If yes, which problems and at what question?)

6. End of interview