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List of abbreviations

BMG	Business Model Gallery
e.g.	Exempli gratia (Latin: for example)
FMCG	Fast-moving consumer goods
ICT	Information and communication technology
i.e.	Id est (Latin: that is)
IRL	Innovation Readiness Level
IP	Intellectual property
R&D	Research and Development
ROI	Return on investment

Introduction

Innovation management is an extensively studied field in both academic and practice research. In the past several decades, it has gathered an impressive expertise primarily in the areas of product and process innovation. In light of the recent developments in the global economy, advancements in technology, and global economic crises, the attention of scholars and practitioners has increasingly shifted to the innovation of business models (Teece 2010, p. 173; Amit & Zott 2012, p. 41).

Indeed, companies feel pressurized as due to the rising customer demands they are expected to meet the customers' needs in terms of function, price, time, quantity, service, and place of the desired product (Corso & Pellegrini 2007, p. 333). In the course of globalization, the business environment has become more competitive and has led companies to pursue generation of profits in two different ways. On the one hand, they enter new markets by expanding geographically and/or distributing new products based on new technologies. On the other hand, companies adopt cost-cutting strategies by making use of new technologies and skills (Osterwalder 2004, p. 11).

The question arises why prominent companies with innovative products and new technologies that dominated their markets for decades, such as AEG, Kodak, or WorldCom Inc., suddenly lose ground and give way to their competitors (Gassmann et al. 2013, p. 1)? It seems that having the latest technology and the best skills at one's disposal to produce novel products is not the whole recipe for success. What is crucial, and what the aforementioned companies failed to align with the changing environment, is their business model (Gassmann et al. 2013, p. 1).

Indeed, the business model concept represents a relatively novel unit of analysis. The rise of the Internet and new Information and Communication Technologies (ICT) enabled opportunities for a great variety of distinct business model configurations. For instance, businesses can target customers more effectively while being independent from the geographical location since they have access to different channels. Hence, the massive growth of innovative business models can be ascribed to the development of the digital era (Osterwalder 2004, p. 12).

Business models are subject to constant changes in the environment such as technology, competition, customer demand, social environment, and legal issues, which have a direct or indirect impact on the business model (Osterwalder 2004, p. 18f.). This fact implies that business models also need to be changed or updated accordingly. It is even predicted that competition will be held between business models rather than products and technologies (Gassmann et al. 2013, p. 1). However, there is evidence that business model innovation has not been sufficiently operationalized so far and has not been applied systematically and continuously across the corporate world (Gassmann et al. 2013, p. 1).

Interestingly, according to OECD data, between 2008 and 2010 more companies pursued product and/or process and marketing and/or organisational innovation as compared to the percentage of those firms performing product and/or process innovation only. Brazil, with 36.9 percent, had the highest rate of those companies who were organisational and/or marketing innovators only, followed by Israel (28.9 percent) and Japan (20.5 percent) among the surveyed countries. In this survey, marketing innovation is referred to as an implementation of a new marketing method producing substantial changes in any marketing-related area. Organisational innovation implies the introduction of a new organisational method within the firm's business operations, workplace organisation or external relations (OECD 2013) which may include business model innovations too.

The business model concept holds relevance for not only the incumbent companies that have preserved their business models throughout their entire business activity, but also has significance for start-ups. Among innovation-driven economies, the highest total early-stage entrepreneurial activity rates (i.e. incipient businesses and those less than 3.5 years old) are present in Qatar (16.4 percent of the population aged 18-64 years), Trinidad & Tobago (14.6 percent), and United States (13.8 percent) (GEM 2014, p. 12). It is estimated that nine out of ten start-ups fail (Griffith 2014). According to a recent analysis of 101 start-ups post-mortems, one of the top ten reasons why start-ups fail can be attributed to the need or lack of a business model. To be precise, 17 percent of the start-ups failed in consequence of this matter (CB Insights 2014). Thus, it becomes obvious why organisations need to funnel their attention on business model innovation.

Simultaneously, reviewing the literature on innovation in the past decades, a manifestation of a paradigm shift from producer innovation to user innovation can be established. For a long time it has been assumed that producers are the drivers of innovation that would be made available as goods and services for sale (Baldwin & von Hippel 2011, p. 1399). Not so long ago, in 1996, Teece posited that “in market economies, the business firm is clearly the leading player in the development and commercialization of the new products and processes” (Teece 1996, p. 193). This observation follows the notion of the dynamic entrepreneur who creates new opportunities for investment, growth, and employment established by Joseph Schumpeter in 1912 (Śledzik 2013, p. 71). However, in consideration of changes in the global economy, higher demands in terms of customisation, and stronger connectivity due to new ways of communication, it has become evident that the role of the customer has changed in the new economic system and transformed from "isolated to connected, from unaware to informed, from passive to active" as Prahalad and Ramaswamy (Prahalad & Ramaswamy 2004, p. 4) put it in a nutshell. The new form of relationship between companies and customers intensified over time with the result that customers are increasingly included into the corporate innovation process. But it is not only the customers, who are viewed as potential solvers for internal problems. It was empirically observed that individuals, who draw on knowledge in fields analogous to the problem posed, were more likely to deliver solutions of significantly greater novelty (Franke et al. 2014, p. 1072). This practice of delegating a task to a crowd rather than a designated agent is called crowdsourcing, and has grown in appeal across firms in recent years.

The present thesis aims at providing an understanding on the use of crowdsourcing as a method of distant search for solutions in the context of a business model innovation. The value of crowdsourcing for business model innovation is exemplified with a case study of an online start-up seeking for promising ideas within the idea generation process for a business model innovation. Therefore, an overview of business model innovation and crowdsourcing literature is given, especially by presenting recent insights. Despite the missing consensus among scholars on a clear definition of the business model concept, this thesis intends to enhance the knowledge on business model innovation as well as to emphasize its importance to sustain competitive advantage.

The remainder of this thesis is structured as follows. The first chapter introduces the concept of business models, its definition, origin, and the theoretical frameworks it is based on. Suggestions on the structure of business models and their actual purpose are illustrated

subsequently. The chapter concludes by addressing features of electronic business models, which is relevant in light of the focal company in the empirical study.

The second chapter continues with a survey of innovation in business models. The significance of business model innovation is highlighted in contrast to other innovation patterns. Sources and types of business model innovations are presented and are illustrated by selected well-known examples. Additionally, it shows how value can be created and how new business models can be designed. Subsequently, implementation of business model innovation is elucidated in detail, followed by an overview of factors which have an impact on business model innovation. Since innovation activities are known to be related with resistance, the chapter terminates with potential barriers to business model innovation.

The third chapter proceeds to the other main theoretical part of this thesis in which the conception of crowdsourcing gains centre stage. A definition of crowdsourcing is provided, which is followed by a delineation of its advantages and disadvantages. The motivational drivers and reward systems of crowdsourcing, the characteristics of the crowd, and implementation principles for crowd-based activities are discussed next. Finally, the last part addresses the question of how crowdsourcing may impact business model innovation.

The fourth chapter deals with the methodology of the empirical study. In particular, it discusses the competition on idea generation for an online start-up, and explains how data was collected and evaluated. Next, in chapter five, the results of the studies are reported. The first part of this chapter deals with the analysis of the quantitative findings, while the second deals with the qualitative ones. In chapter six, the results are discussed, and recommendations for use of crowdsourcing in business model innovation are outlined. Chapter seven discusses the limitations and shortcomings of the current research. Several proposals for future research are also made in this chapter.

1 Business models: an overview.

1.1 What is a business model? Definition and composition of the concept.

1.1.1 The emergence of the business model concept.

In recent years, the business model concept has attracted a great deal of attention, and many researchers and practitioners have devoted themselves to exploring its constitution. To begin with the outline of the business model concept, it is important to learn about its evolution. The term “business model” was first mentioned in a scientific paper in 1957 (Bellmann et al. 1957) and 1960 (Jones 1960) (Burkhart et al. 2011, p. 4). However, the widespread use of it is associated with the rise of technology-driven companies as a means to explain how innovative technology and other concepts can be commercialised and marketed (DaSilva & Trkman 2014, p. 380).

As a further aspect promoting the spread of the concept, Teece (2010) mentions the increasing practice to outsource and offshore particular business operations, and the reorganisation of the global financial sector (Teece 2010, p. 174). In particular, the rapid expansion of the Internet offers new ways of distribution, and demands a restructure of old patterns such as the distribution procedures of traditional “bricks and mortar” companies (Teece 2010, p. 174).

Without doubt, this age is characterised by a fast pace in the development of new business models. For instance, the marginal costs for transactions in the digital age have decreased to almost zero. The reduction of transaction costs has progressed to traditional companies as well. This development allowed, e.g., the low-cost carrier Ryanair to differentiate itself from traditional airlines, by eliminating the sales agents in the ticket sales process, thus enabling travellers to buy tickets conveniently and cheaper from home (DaSilva & Trkman 2014, p. 383).

In the past decades, the concept was subject to investigation in various contexts. While the scientific contribution on this topic was one motivation to enhance the research, another one was to provide value with practitioner-oriented studies (Zott et al. 2011, p. 1020). Zott et al. (2011) analysed the recent developments in the business model literature and identified three facets addressed in research: 1) the emergence of e-business and the use of information technology in companies, 2) strategic aspects such as value creation or performance, and finally 3) innovation and technology management (Zott et al. 2011, p. 1023).

To sum up, since the dotcom boom in the mid-1990s and its aftermath in the 2000s, business models have emerged massively. However, some doubts have been raised if business models are indeed significant representations of how companies will be operated in future (Doganova & Eyquem-Renault 2009, p. 1559).

1.1.2 Insights into the approaches towards the business model concept.

Numerous studies and articles have attempted to define the business model concept with a great diversity of approaches and interpretations. This points to the fact that a consensus on the definition among researchers is still lacking (Chesbrough & Rosenbloom 2002, p. 534; Magretta 2002, p. 8) despite the long run the term has been circulating. In this passage, several prominent definitions on the concept are presented.

Magretta adopts a quite abstract approach while speaking about business models as “stories that explain how enterprises work” (Magretta 2002, p. 4). They are believed to have the potential of replacing old practices and can be established as the standard for future. The author associates the creation of a new business model with the creation of a new story, as new stories are derived from an old one. However, prior to the widespread use of the personal computer, business models were created in an unplanned and unsystematic way. Profits can be viewed as feedback on the question whether the business model is functioning (Magretta 2002, p. 4f.). As an example, Dell started the practice to sell its computers directly to end users instead through resellers. Thus, the value chain was shortened and Dell obtained access to valuable information to manage its inventory (Magretta 2002, p. 7).

Other authors extend this notion by stating that business models offer a mixture between storytelling and calculation, i.e. they are a narrative and calculative device (Doganova & Eyquem-Renault 2009, p. 1562). They enable innovators to explore a market and to develop their product or venture, and to build the network needed to cultivate it. The authors regard different approaches towards business models, in particular the essentialist, functionalist, and pragmatic approach. While the essentialist view includes depictions or representations of a reality lying beyond the company, the functionalist approach includes a prospective part entailing the preparation of a business plan (Doganova & Eyquem-Renault 2009, p. 1560). The pragmatic perspective elevates people and tools as the driving forces behind business models (Doganova & Eyquem-Renault 2009, p. 1561).

Baden-Fuller and Morgan (2010) introduce the notion of business models as recipes, embracing particular general guidelines and more detailed components, which can be viewed as ingredients. They hold that businesses first adopt the generic type of a business model and then diversify it largely by organising and integrating the main elements as well as adding own combinations of other details. Using the analogy between business models and recipes, companies first determine the basic conditions such as the desired way of preparation (e.g. baking), time and temperature, after which they devote themselves to the specific ingredients. With this, innovation becomes one of the basic characteristics of business models (Baden-Fuller & Morgan 2010, p. 166).

Taking a broad view on business models, there is to distinguish between the academic and management perspective. From the academic perspective, business models describe how companies operate in different generic modes (Baden-Fuller & Morgan 2010, p. 163). In this sense, they differ from business strategies, however, both concepts combined are needful in order to preserve and to nurture the competitive advantage (Teece 2010, p. 180). Moreover, it represents an aspect of identification (Baden-Fuller & Morgan 2010, p. 165). From the management perspective, a real-world firm experiment which would modify one small part of the model can lead to profound changes in the whole structure (Baden-Fuller & Morgan 2010, p. 164).

In strategic management literature, the following definitions are often quoted:

The business model depicts the design of transaction content, structure and governance so as to create value through the exploitation of business opportunities.
(Amit & Zott 2001, p. 494f.)

A successful business model creates a heuristic logic that connects technical potential with the realization of economic value and that the business model unlocks latent value from a technology. (Chesbrough & Rosenbloom 2002, p. 529)

A business model articulates the logic and provides data and other evidence that demonstrates how a business creates and delivers value to customers. It also outlines the architecture of revenues, costs, and profits associated with the business enterprise delivering the value. (Teece 2010, p. 173)

It can be noted that with progressing research the definition of the business model concept has become more elaborated. A recent comprehensive and detailed characterisation of the business model is expressed by Amit and Zott (2012, p. 9):

We define a company's business model as a system of interconnected and interdependent activities that determines the way the company "does business" with its customers, partners and vendors. In other words, a business model is a bundle of specific activities - an activity system - conducted to satisfy the perceived needs of the market, along with the specification of which parties (a company or its partners) conduct which activities, and how these activities are linked to each other.

The different activities underlie an interdependence, which is attained by selecting and integrating a set of organisational activities, coupling them within the system, and forming them via those governance tools, which control the entire system (Amit & Zott 2010, p. 9).

Generally, a business model only conceptualises a business and does not portray the operational dimension. Strategic abstraction of the processes is required, as the focus is on core standard repeated processes only, without any details (Cavalcante et al. 2011, p. 1328f.). The core competences of a business model stem from individual cognition and the specific needs of a company, however, their coordination and configuration is also important. In case a business model is changed, the relevant mechanisms within a company need to be detected. The core repeated standard processes should be considered as the boundary of a firm (Cavalcante et al. 2011, p. 1330).

Al-Debei and Avison (2010) adopt a content analysis approach and use categories of the interpretation to classify the concept. They suggest assigning the definitions of business models to the dimensions of value proposition, value architecture, value network, and value finance thus emphasising the underlying value of the business model. They perceive the business model as dynamic that may fulfil different purposes within organisations. The authors embed the concept between business strategy and business processes. Therefore, they reject the view of business models being a substitute for corporate strategy (Al-Debei & Avison 2010, p. 365). The value network includes organisational actors and customers, their inter-relationships, roles, and communication into the concept of the business model. The design of a business model needs a balance of the different and conflicting aspects present within the components of the model (Al-Debei & Avison 2010, p. 368). The authors claim that understanding the internal structure of a business model is not as important as to grasp its interaction with the environment. They refer to a granular concept which is broken into components and subdivided into elements (Al-Debei & Avison 2010, p. 369). In this sense, the concept can be rather characterized as outside-in rather than inside-out which is especially highlighted in the integration of the customer value perspective (McGrath 2010, p. 248).

McGrath (2010) adds further features to the business model concept. Firstly, she notes that business models do not occur at once but are learnt over time, which alludes to the aspect of experimentation. In addition, business models provide a new perspective on competitive advantage, which, however, is rather temporary and thus dynamic. The author splits the concept into two core elements: The first is the basic ‘unit of business’, i.e. products, services, and other offerings what customers pay for. The second are process advantages resulting in performance benefits, which are connected to a set of key metrics (McGrath 2010, p. 248f.). To succeed, companies need to select a range of activities aimed towards distributing the defined units of business. Key metrics help improve the performance and make a statement regarding the quality of operations. As previously mentioned, Dell introduced its radically different “build-to-order” model for selling its computers in which customers ordered and paid for the computer before Dell would build it. Key metrics are mainly based on the most critical limiting component of the value chain (McGrath 2010, p. 252).

When talking about business models, the connection to technology, in particular to ICT may not be neglected. In this respect, Osterwalder et al. (2005) view the business model as a building plan that aligns business strategy, business organisation, and ICT, which together form the business triangle. Discussing the relationship between time and business models, one may say that in fact it is a snapshot and a description at a particular moment (Osterwalder et al. 2005, p. 14f.).

Taking into consideration the aforementioned approaches towards the business model concept, the present confusion does not seem surprising. In some cases, it was interpreted in line with other concepts such as corporate strategy, business process, or business case (Al-Debei & Avison 2010, p. 360). An additional aspect reinforcing the confusion is the fact that the expression ‘business model’ is used for various matters, for instance, parts of a business model (e.g. auction model), different types of business models (e.g. direct-to-customer model), specific examples of a real-world business model (e.g. Dell business model), and generic concepts (Osterwalder et al. 2005, p. 8).

Having outlined the supportive ideas on the business model concept, conclusively some negative voices that have been raised should be mentioned. For instance, the strategy scholar Porter referred to business models as “a loose conception of how a company does business and generates revenue” and criticised this management approach as “an invitation for faulty

thinking and self-delusion” (Porter 2001, p. 73). Others state that the term is fuzzy and the question arises if it even adds value to the management literature (DaSilva & Trkman 2014, p. 382).

1.1.3 Theoretical frameworks in the context of the business model concept.

In literature, various theoretical frameworks have underpinned the business model concept. It is often approached from the resource-based view and transaction costs economics (e.g. DaSilva & Trkman 2014). The resource-based view of the firm holds that the firm’s profitability largely depends on the type, extent, and features of the firm’s resources and capabilities (Amit & Schoemaker 1993, p. 35). Resources are an accumulation of a variety of available resources that with the aid of other firm assets and mechanisms, such as technology, are transformed into final products and services. Different types of knowledge, for example patents and licenses, form one part of the resources. Further, *inter alia*, financial or physical assets play a pivotal role. The firm uses its capabilities to combine these resources by integrating organisational processes in order to realise the company’s goals. The processes are characterised as firm-specific, information-based, tangible, or intangible. Usually, they are developed over time as a consequence of the interactions among the resources (Amit & Schoemaker 1993, p. 35). Also, resources underlie a heterogeneous distribution across firms which results in a continuous difference in resource allocation. To specify, the resources need to be valuable, rare, inimitable, and non-substitutable for the firm to achieve competitive advantage (Eisenhardt & Martin 2000, p. 1105).

Over time, the resource-based view was extended to include dynamic markets since unpredictable changes can emerge that can consequently influence the competitive environment. Hence, a sustainable competitive advantage is derived from dynamic capabilities which “integrate, build, and reconfigure internal and external competencies to address rapidly changing environments” (Teece et al. 1997, p. 516). Dynamic capabilities encompass managerial and organisational processes that promote sensing and seizing business as well as technological and market opportunities. Further, they help reconfigure assets in the course of the development of the firm and market changes (Teece 2007, p. 1330). From the business model perspective, particular critical capabilities are based on strategic and organisational activities which facilitate the formation and adaptation of business models (Achtenhagen et al. 2013, p. 429).

However, the resource-based view alone is not enough to grasp the complexity of business models, as the resources need to be processed through transactions, in order to create value for customers (DaSilva & Trkman 2014, p. 382). Thus, the notion is supported to combine the resource-based view and transaction cost economics and to argue that value is generated through this specific combination (DaSilva & Trkman 2014, p. 382). The transaction cost theory centres on economisation of transaction costs by leveraging efficiency when conducting transactions (Williamson 1981, p. 549). Along these lines, it is reasonable that originally business models were associated with Internet-based companies. It is due to the advent of the Internet and ICT in general that dramatic reductions in transaction costs were achieved (DaSilva & Trkman 2014, p. 382).

Currently, research on business models is also approached from the strategy perspective (Baden-Fuller & Mangematin 2013, p. 419; Achtenhagen et al. 2013, p. 429). Strategy influences the growth of capabilities that can change current business models. Dynamic capabilities can be viewed as the link between strategy and business models under consideration of the length of the perspective. Thus, business models are also restricted by the organisation's dynamic capabilities (DaSilva & Trkman 2014, p. 383).

Other theoretical frameworks worth mentioning include the value chain concept, strategic network theory, cooperative strategies, and aspects related to firm boundaries (e.g. Morris et al. 2005, p. 728; Zott & Amit 2013, p. 403).

1.2 Concepts on the business model structure.

Having gained insights on the emergence of the business model concept, its definitions and its development, it is now important to learn about its actual structure. Not surprisingly, the literature offers a substantial variety of suggestions on the business model structure. The different suggestions can be derived from the fact that every company has a clearly defined area of operation and within this scope it performs activities such as creating value in return for compensation. Especially, with the growth of the firm the boundaries are becoming more explicit until they mark the core operating space that demands the firm's resources and capabilities. As time passes, this core embodies the highest value and all efforts are directed towards it while creating new products, targeting new markets, and improving processes (Johnson 2010, p. 6).

Often quoted examples of suggestions for the business model structure can be found in Chesbrough and Rosenbloom (2002), Johnson et al. (2008), Morris et al. (2005), and Osterwalder et al. (2005). Despite its differences, core elements such as ‘value proposition’ and ‘revenue model’ can be identified as common features. In particular, Johnson et al. (2008) define the business model composition based on four components, i.e. customer value proposition, profit formula, key resources, and key processes (Johnson et al. 2008, p. 60f.).

1. **Customer value proposition:** A product or a service helps customers perform a task (“Job-to-be-done”) or solve a problem in a more effective, affordable, or convenient way.
2. **Profit formula:** Refers to the profit a company will generate including the revenue model (price x volume), cost structure, as well as the margins and resource velocity.
3. **Key resources:** Embrace all the resources needed (e.g. workforce, technology, facilities, or brand) to deliver the value proposition to the consumer.
4. **Key processes:** Include recurrent tasks enabling the delivery of the customer value proposition, e.g., by business rules, behavioural norms, and success metrics.

Key resources and key processes are highly interrelated and their synergy has a strong impact on the company’s success (Johnson 2010, p. 24f.).

Morris et al. (2005) and Morris et al. (2006) identify six components of a business model with factors related to market offering, market factors, internal capability, competitive strategy, economic factors, and personal/investor factors (Morris et al. 2005, p. 730; Morris et al. 2006, p. 36).

Osterwalder et al. (2005) identify the most common building blocks of business models discussed in literature and compile nine of them that cover all the important aspects delineated in previous research (Osterwalder et al. 2005, p. 17). With this, the authors succeed in creating a comprehensible business model concept which on the one hand reveals all relevant aspects of a firm but on the other does not reduce the complexity of a company’s nature. The authors underpin their composition of the business model with the definition that a “business model describes the rationale of how an organization creates, delivers, and captures value” (Osterwalder & Pigneur 2010, p. 14). In other words, it represents the architectural structure of the organisation taking into consideration the internal processes and the interactivity with the environment. The authors conceptualise a structure consisting of nine building blocks that

embrace the organisation and the procedures of a company's business operation. Their valuable input for the studies on business models consists of the creation of the "business model canvas", which has become a widely used tool to visualize business models. The business model canvas as depicted below can assist, for instance, in the idea generation phase when new business models are created.

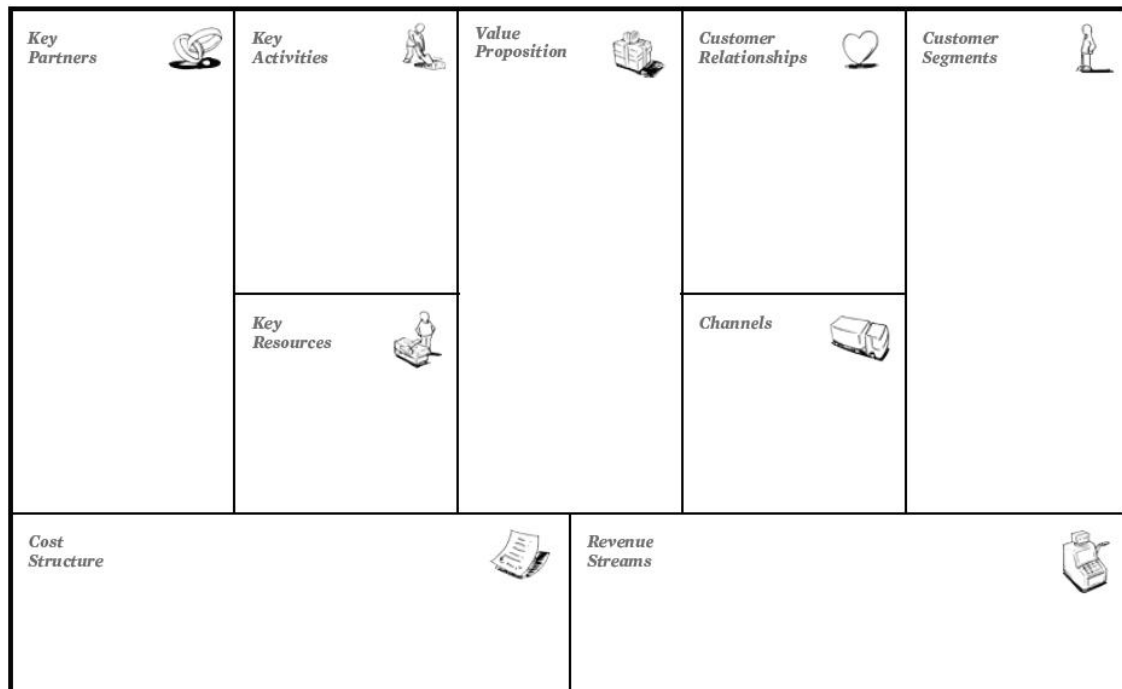


Figure 1. Business Model Canvas (Reference: Osterwalder & Pigneur 2010, p. 44)

As the business model canvas will be encountered in the empirical part later in this thesis, it is needful to familiarise with its key components:

1. **Customer segments:** Defines the different groups of people or organisations an enterprise aims to reach and serve.
2. **Value proposition:** Describes the bundle of products and services that create value for a specific customer segment.
3. **Channels:** Describes how a company communicates with and reaches its customer segments to deliver a value proposition.
4. **Customer relationships:** Describes the types of relationships a company establishes with specific customer segments.
5. **Revenue streams:** Represents the cash a company generates from each customer segment.
6. **Key resources:** Describes the most important assets required to make a business model work.

7. **Key activities:** Describes the most important things a company must do to make its business model work.
8. **Key partnerships:** Describes the network of suppliers and partners that make the business model work.
9. **Cost structure:** Describes all costs incurred to operate a business model (Osterwalder & Pigneur 2010, pp. 22-40).

Every company may fill the canvas with its individual components thus raising its own unique component constellation, quasi its blueprint. In contrast to the model by Johnson et al. (2008), this concept emphasises the importance of partnerships, the separate consideration of costs and revenues, and further distinguishes the aspect related to the customer in several components. As this concept marks a clear and fine-grained approach towards the understanding of business models, it will be used in the empirical part of this thesis.

Euchner and Ganguly (2014) criticise the canvas insofar as it cannot help to obtain a strong business model but is rather a means to represent a business model. In their opinion, it lacks the inclusion of the dynamic elements of the business model such as the relationship between the components or the competitive position (Euchner & Ganguly 2014, p. 35).

1.3 The specific function of the business model.

Researchers from various disciplines such as information management, strategy, and organisation theory are engaged in the debate on business models (Wirtz et al. 2015, p. 1). The term business model has also been frequently used by business actors (Baden-Fuller & Morgan 2010, p. 156) which raises the question on the utility of this concept. This chapter aims at expounding the various functions of the business model.

The business model concept itself can be useful for various applications, for instance, communicating, analysing, managing, simulating, testing, and patenting of business models (Osterwalder et al. 2005, p. 19). There is no doubt about the fact that a good business model is crucial for a company's success. A good business model attracts customers with its value propositions, it is able to capture value with its business activities and it is economically viable (Teece 2010, p. 174). Business models often come along with a technological innovation, which needs to be introduced into the market to respond to the unmet customers' needs (Teece 2010, p. 176). Thus, a business model is a helpful tool to transfer the technical innovation into

commercial success (Teece 2010, p. 184; Chesbrough 2010, p. 354). It largely depends on the business model how return can be generated which can be very different for one single technology. It is suggested that in case a defined business model is lacking, it needs to be formed soon (Chesbrough 2010, p. 354f.).

Chesbrough argues that the purpose of a business model is twofold: value creation and value capture. By meeting the needs of the final customer, the company performs a set of activities that results in a created net value. However, the author hints that these two goals can be in conflict with each other. He mentions the example of a high-quality proprietary technology that can easily capture value but which would create more value for customers if the technology was more open (Chesbrough 2007, p. 12).

Chesbrough and Rosenbloom perceive the business model as a mediating construct between technology and economic value creation (Chesbrough & Rosenbloom 2002, p. 532). The authors refer to the following aspects as the functions of a business model (p. 533f.):

- Articulate the value proposition (for users)
- Identify a market segment (i.e. the prospective customers)
- Define the configuration of the value chain essential to deliver the value proposition
- Estimate the cost structure and profit potential
- Define the company's position within the value network connecting key partners and customers
- Frame the competitive strategy in order to maintain competitive advantage over competing firms.

Value is referred to how much customers are willing to pay for a product or service, not the physical performance characteristics. The difference between business models and strategy is that the business model strives to create value for the customers but the value creation and sustainability can be more attributed to strategy. Threats through competition are rather viewed as part of strategy. Also, the financial dimension does not form an essential part of the business model, especially value creation for the shareholder. Finally, knowledge is cognitively limited in the business model construct while strategy assumes that relevant information is abundantly available (Chesbrough & Rosenbloom 2002, p. 533ff.).

Chesbrough (2007) presents the Business Model Framework picturing the sequences starting from a basic business model to advanced and more valuable models. Companies may use this

framework to evaluate the position of their business model relative to its potential in order to decide about the further development of the model. The framework ranges from type 1 with a company having an undifferentiated business model to type 6 where a “company’s business model is an adaptive platform” (Chesbrough 2007, p. 15): The business model becomes more open as compared to the previous types and there is commitment to experimentation with variations, e.g. companies use spin-offs and joint ventures to commercialise knowledge (Chesbrough 2007, p. 15).

Today’s business environment can be characterised as integrated and boundary-spanning requiring conceptual responses. The business model concept serves not only as a framework to create a completely new business model but also to innovate an existing business model (Teece 2010, p. 176). The components are of interdependent nature such that changes in one component are reflected in other components as well (Hacklin & Wallnöfer 2012, p. 171f.). Thus, despite providing stability for the development of corporate activities, it allows change at the same time. Managers might not be able to pursue the implementation of a new technology or project in time if the existing business model does not correspond to the new opportunities (Cavalcante et al. 2011, p. 1328).

The analysis by Al-Debei and Avison (2010) reveals that business models can mediate between technology and goal achievement and are employed in supporting decision-making as a knowledge tool (Al-Debei & Avison 2010, p. 365). It is a useful tool for entrepreneurs as it “handles the tension between collective action and exploration, between framing and overflowing” (Doganova & Eyquem-Renault 2009, p. 1568). The usefulness of business models has also been studied by assessing its performance efficiency, however, no conclusive findings could be achieved so far (Doganova & Eyquem-Renault 2009, p. 1561). There is to add that the success of a business model is not always apparent. Seemingly, some key elements exist which make a particular type of business model successful, raising the question why it is this particular element and not another one (Baden-Fuller & Morgan 2010, p. 162).

Amit and Zott (2010) refer to a study of the Economic Intelligence Unit from 2005 in which the majority of the 4000 interviewed senior managers favoured innovative business models over novel products and services as a source for competitive advantage (Amit & Zott 2010, p. 3). As an example, the authors report on the evolution of Apple’s business model which was radically shifted from manufacturing novel hardware products to a combination of software and hardware

products actuated by the launch of the iPod and iPhone (Amit & Zott 2010, p. 3; Johnson et al. 2008, p. 59).

Overall, business models can create value through efficiency, novel offerings, complementarities, and lock-in due to strategic networks (Zott & Amit 2013, p. 403). Market failure can be attributed to the lack of a well-functioning business model with its attached mechanisms (Teece 2010, p. 185).

1.4 Insights into electronic business models.

As stated above, business models have gained momentum in the era of the Internet boom. Despite the increased interest in the business model concept during this time frame, more empirical studies can be found from 2002 in business and management literature alluding that it is closely related to both general and electronic business research (Lambert & Davidson 2013, p. 671). This section is dedicated to shed light on business models in the digital world, as this knowledge will help understand the business model of the focal firm in the empirical study, which is an online start-up.

The eco-system of e-business is characterised by high levels of complexity, uncertainty, competition, and dynamism. The business model serves here as a base for the constructing model of business operations including the information system. In fact, the business model aligns business processes and a business strategy, which need to be harmonised as it is showed in figure 2 below. Moreover, it is responsible for a technology being successful or to fail (Al-Debei & Avison 2010, p. 369ff.). In this sense, business models serve as strategic-functional algorithms including business rules and practices. They are rarely explicitly expressed or openly communicated but are maintained as tacit knowledge in the minds of managers. When being explicitly presented, a business model is an important organisational knowledge asset helping to improve strategic decision-making. Al-Debei and Avison (2010) propose to use business models as novel strategic knowledge capital to improve the company's innovation performance and strategic decision-making. Business models need to respect environmental aspects such as laws, competition, technological development, or culture (Al-Debei & Avison 2010, p. 372f.).

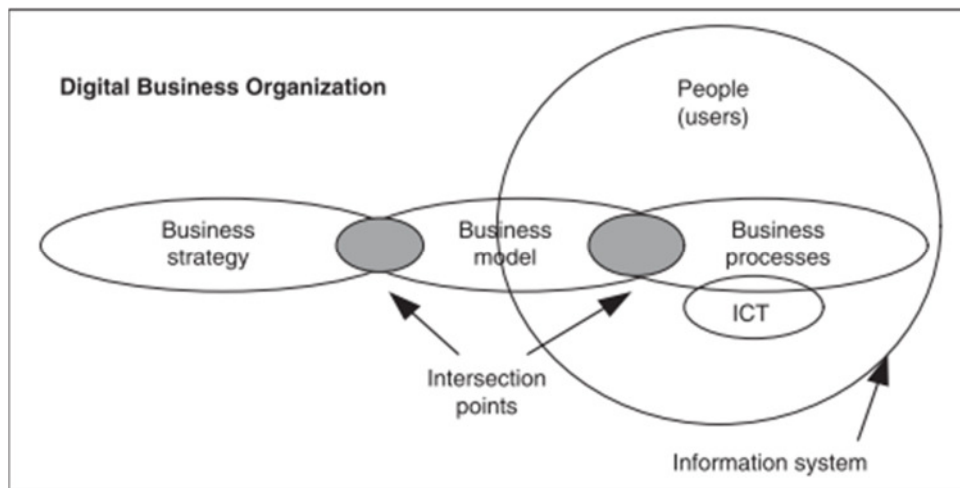


Figure 2. Business model intersection points (Reference: Al-Debei & Avison 2010, p. 370)

The potential of electronic business models is tremendous. In 2012, 903.6 million people worldwide bought goods and services through the web, and the number of digital buyers is expected to grow to 1.3 billion by 2016 (Statista 2015). Interestingly, an empirical study on the business models of 130 public Internet companies showed that companies that connected consumers and businesses through a platform facilitating online transactions and generated revenues primarily through advertising were more likely to survive (Kauffman & Wang 2008, p. 229).

Digital technologies have a dramatic impact on the economic system by influencing the way businesses interact with each other and with their customers. They also promote opportunities for novel businesses (Lumpkin & Dess 2004, p. 161). Lumpkin and Dess (2004) mention four activities that are specific for online business models that prove to add value:

1. **Search:** Includes collection of information and exploring buying options.
2. **Evaluation:** Provides access to alternative options with the possibility to compare the costs and benefits of them. However, not all products can be evaluated online, especially those which involve multiple senses.
3. **Problem-solving activities:** Imply the identification of problems as well as search for solutions.
4. **Transaction:** Transaction activities include the entire sales processing from negotiations to payment and delivery as the final step (Lumpkin & Dess 2004, p. 162ff.).

These activities can be complemented with three types of Internet content as companies create competitive advantage through content, which can be generated at a low cost. This content

should be part of the value proposition and features 1) customer feedback through customer testimonials, 2) expertise (users can gather new knowledge and can get education on choices), and 3) entertainment programming, i.e. news, video games, online movies (Lumpkin & Dess 2004, pp. 162-166).

According to the 4C Internet business model framework proposed by Wirtz et al. (2010), four general types of typical Internet business models can be specified: Content, Commerce, Context, and Connection. Each of them exhibits specific characteristics, however, they do not always occur in their pure form but hybrid or integrated firms are common (Wirtz et al. 2010, p. 274). Commerce-oriented business models such as Amazon provide cost-efficient trade transactions for buyers and sellers of goods and services. Context-oriented firms, e.g. Google, offer a structure for existing information and help manage the mass of information available on the Internet. Connection-oriented enterprises set the infrastructure enabling users to exchange information in online networks. Lastly, the content-oriented type of business model, which the focal company of this thesis can also be classified to, collects, compiles, and distributes online content. Creating user-friendly access to a range of relevant content is the primary objective of such business models (Wirtz et al. 2010, p. 274f.).

Virtual markets offer many opportunities, for instance, firms can easily include complementary products into their product portfolio, form new collaborations, or obtain access to more needful information, thus reducing asymmetric information. Also, they facilitate customer-centric business models that create more value by involving customers (Amit & Zott 2001, p. 513). Furthermore, e-business models are often renewed through new exchange mechanisms and transaction structures that differ from traditional organisations (Amit & Zott 2001, p. 493ff.). Examining major value drivers of e-businesses Amit and Zott (2001) identified four of them:

1. **Novelty:** Due to the lack of geographical and physical constraints, novel information bundling and channeling strategies are possible.
2. **Lock-in:** Implies the extent to which customers are willing to draw on the firm's offer repeatedly and the extent to which key partners are willing to maintain the relationship. The lock-in effect aims towards retaining both customers and partners by providing attractive incentives.

3. **Complementarities:** Constitutes that one bundle of goods yields more value than each of the goods separately. Complementarities increase value by increasing revenues. Also, offline assets can complement an online offer.
4. **Efficiency:** Transaction efficiency increases when costs for each transaction decrease. Virtual markets can be connected at a low cost and due to the pace of information delivery, decision-making is enhanced. Further, efficiency can be achieved through reducing distribution costs, economies of scale through bulk purchasing, and faster order processing (Amit & Zott 2001, pp. 503-508).

Options for e-businesses to generate revenues include subscription fees, advertising fees, and transactional revenues such as fixed transaction fees or referral fees (Amit & Zott 2001, p. 515). Overall, e-business models should be distinguished from traditional offline business models as they display own particular characteristics.

Digital business models are seen disrupting traditional businesses. For instance, Uber created an app to help facilitate mobility by connecting drivers and people seeking for a ride. Its highly competitive prices and the convenience to order a vehicle in the proximity make this service very attractive for customers thus disrupting the taxi business. However, it would be a hasty conclusion to say that digital business models are replacing offline businesses. One can rather refer to a transformation that is taking place and companies are increasingly moving toward digital-physical fusions (Rigby 2014, p. 4). For instance, Google that started as a digital search engine has developed into a company producing physical products such as smartphones and tablets. The objective should be to nurture capabilities that integrate the best of both worlds and make it difficult for firms purely relying either on the digital or traditional business to compete (Rigby 2014, p. 10).

To sum up, the first chapter has demonstrated that the list of business model definitions is extendable since there is a lack of consensus in the understanding of the business model concept among the discussants from the academia and business. Nevertheless, the most prominent approaches to business models and concepts on the structure of the models were outlined.

2 Innovation of business models.

Having discussed what business models are and what purpose they fulfil, this chapter focuses on how business models can be modified, how business model innovation can be implemented, and how it actually creates value for the company.

2.1 Business models as innovations.

Schumpeter, one of the most influential economists of the 20th century, distinguished between five types of innovations: new products, new methods of production, new sources of supply, exploitation of new markets, and new ways to organize business (Schumpeter 1934, p. 66). Although he did not explicitly mention the term ‘business model’ as it was not popularised at that time, he referred to the organisational aspect that needs to be modified over time. Reinvention of the business organisation has subsequently become sphere of interest in the academic world.

In 1975, Utterback and Abernathy established their model in which they showed how product and process innovation advance over time and how they are interrelated. They detected the pattern of a relation between the stage of development and the corresponding rate of innovation for product and process innovation. According to this, the rate of process innovation increases while the rate of product innovation diminishes (Utterback & Abernathy 1975, p. 645). Recently, this model has been extended by business model innovation, which is introduced once the product innovation has decreased severely. Initially, companies compete on the product features and functions but shift innovation towards processes over time when the product-related needs of the customers, in particular functionality, are widely satisfied. Quality and reliability is the next focus of the companies before cost reduction becomes the focal point on the agenda (Massa & Tucci 2013, p. 435). The figure below pictures the three types on innovation and their interdependence.

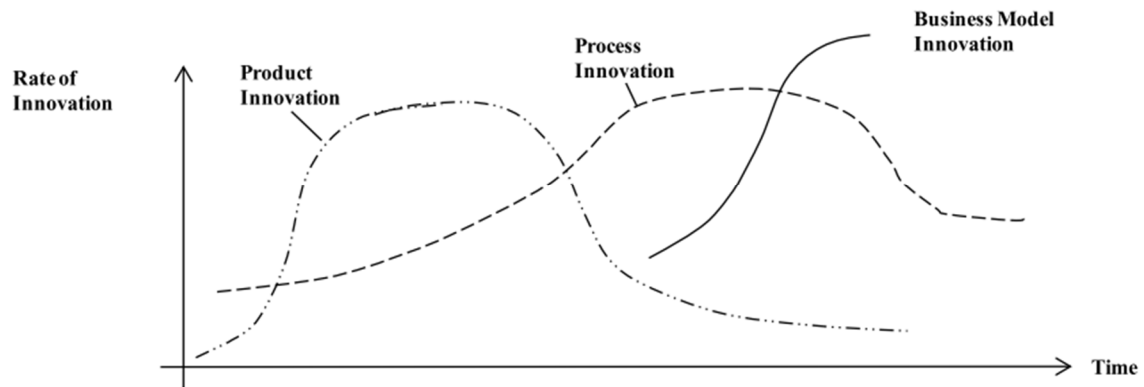


Figure 3. The three types of innovation in the course of time (Reference: Massa & Tucci 2013, p. 436)

Business model innovation entails modifications of the boundaries of the firm as well as inside the internal structure, control, and company culture. Modifications of the business model are typically strategic matters and postulate collective efforts among the top management team (Leih et al. 2015, p. 2f.).

Leih et al. (2005) draw on the dynamic capability framework to provide a better understanding of the organisational changes as part of a business model innovation. In their definition, “dynamic capabilities encompass the entrepreneurial activities, processes, and leadership skills by which 1) the need for changing/ innovating existing business model is recognised, and 2) the necessary assets are a) accessed and b) orchestrated in the pursuit of new value creation” (Leih et al. 2015, p. 8). Dynamic capabilities are available in the entire organisation and are basically used by the firm to “orchestrate” its resource base in order to fulfil customers’ demands within the market. Capabilities are grown through the application of material and human assets thus nurturing collective learning. According to the authors, dynamic capabilities are influenced by the organisational design; in particular to what extent it allows to perceive the need for a business model innovation. It can be argued that a high degree of delegation and vertical communication promotes new ideas for innovation, as employees have better opportunities to interact with important stakeholders. Open channels to the top management enable to deliver the information flow to the decision-making actors. However, due to shifts in the organisational structure, tension may arise among different parties within the company (Leih et al. 2015, p. 3f.,7).

Demil and Lecocq (2010) propose a framework in which constant dynamics stem from interactions between and within the main model components that are described ex ante (e.g.

value network or customers). In the first case, interactions between components may result in a new value proposition or changes in the organisational structure. Additionally, dynamics may originate within core components of a model such that other elements of the same components will be affected. For instance, a new value proposition may advance other value propositions to emerge. The authors argue that a significant modification of the cost/revenue structure is generally the observable indication of a business model evolution as structural changes are provoked (Demil & Lecocq 2010, p. 231, 234f.).

2.1.1 Sources of business model innovation.

Chesbrough suggests that business model innovation is not necessarily something to think of in advance but rather a mix between trial and error as well as an ex post adaptation. He assumes that traditional business models stop working and require experimentation to discover new business models (Chesbrough 2010, p. 356f.).

However, it would be too simple to consider the initiation of a business model innovation as such a natural process since many organisations struggle to implement it in an appropriate way. For this reason, the following section intends to explore the various sources of business model innovation. The understanding of why a particular company decided to embark on the innovation process is a prerequisite to be able to decide on the strategy to pursue during the innovation, and to track the development of the implementation.

To begin with, innovations of products and processes are often costly, time-consuming and are further associated with acquisition of special resources and re-organisation of the company. In particular, the standard in innovation used to involve procedures such as large investments in R&D facilities or employment of highly qualified staff. Nevertheless, there was a high uncertainty about future returns (Amit & Zott 2012, p. 41).

Considering the current challenges that have arisen as compared to the former widespread understanding of innovation, e.g. rising costs of new product development, permanent emergence of new product, and shorter product cycles, it becomes obvious that innovation must be viewed in a different light. These days innovation has to go beyond technology and R&D and regard business models as well (Chesbrough 2007, p. 12).

Especially, in times of economic recession, companies turn to cost-cutting measures to be able to survive on the market until the next recovery. In line with this measures, companies naturally reduce or even abandon investments in process or product innovation. However, such cost savings are rather designed for a short period but can impact the relationship to the employees in a negative way as they might feel less motivated and less committed (Amit & Zott 2010, p. 2).

Apart from the monetary aspect, technological development is one driver of business model innovation. Technology itself becomes only valuable if commercialised through the use of a business model. The resulted success depends on the business model employed. In order to capture value from a technology, managers need to find an appropriate business model which could be a familiar one or not (Chesbrough 2010, p. 354f.; Teece 2010, p. 186). Assumedly, a firm can derive a similar value from a business model innovation as from creating a novel technology which implies that the ability to develop a new business model is equally important to the innovation of technologies (Chesbrough 2010, p. 356). In fact, changes in business models are regarded as one of the most sustainable forms of innovation (Sosna et al. 2010, p. 384).

Bucherer et al. (2012) investigate similarities and differences between business model and product innovation by analysing 11 cases of business model innovation. They identify internal opportunities, internal threats, and external opportunities and threats as origins of business model innovation. For instance, it might occur that resources become too expensive or redundant over time (Bucherer et al. 2012, p. 189). They draw on the categorisation established for product innovations by referring to internal origins (technology-push) and external origins (market-pull). One important aspect of the innovation process is the piloting phase allowing firms to test the novel model and to learn (Bucherer et al. 2012, p. 190).

These days, many consulting companies are offering services around business model innovation, for example, McKinsey & Company, Bain & Company, and the Boston Consulting Group (DaSilva & Trkman 2014, p. 382).

2.1.2 Types of innovations.

In literature, innovation is typically classified as sustaining and disruptive. Sustaining innovations consist of products and services that cater to the needs of existing customers in

established markets (Christensen et al. 2002, p. 22) and may be either continuous (evolutionary) or discontinuous (revolutionary) (Christensen et al. 2004, xviii). An evolutionary innovation delivers an improved value of a product or service that can be anticipated. The revolutionary innovation occurs unexpectedly but does not affect an existing market. One example is the automobile which after its introduction was mainly reserved for the affluent class and thus, did not influence the market for horse-drawn vehicles. However, the mass-produced automobile can be denoted a disruptive innovation (Christensen & Raynor 2003, p. 49). Disruptive innovations form the contrast to sustaining innovations and lead to the creation of new markets and business models (Christensen et al. 2002, p. 22). Here, the two different types “low-end” and “new market” can be discerned (Christensen et al. 2004, xvii). The first kind of disruptors targets overserved customers through a low-price strategy, while new market disruptors focus on new non-consumers (Koen et al. 2011, p. 53). One example for the “new market” disruption is the Sony’s Walkman audio player that targeted non-consumers; Intel, as an example of a “low-end” disruptor, developed the Celeron microprocessor to target the computer market with a low-cost product (Koen et al. 2011, p. 53).

Koen et al. (2011) address disruptive business model innovation and present a unified business model innovation typology. This approach should convey the understanding of different types of business model innovation to established companies and the accompanying organisational challenges. Established companies are able to retain their innovation capabilities. The business model innovation typology defines the challenges, which can be classified in the dimensions technology, value network, and financial hurdle rate. The technology dimension distinguishes between incremental, architectural, and radical technological innovation. Incremental innovation describes refinement and improvement of an existing technology. Architectural innovation opens new paths to the integration of elements in a system that changes the existing technology. One example is the iPod with its new design and the affiliated sale of iTunes that will be portrayed in the subsequent passage. Radical innovation aims towards the creation of a new technology (Koen et al. 2011, p. 53). The value network perspective deals with relationships between the focal firm and its customers, suppliers, and competitors. It addresses both its upstream and downstream channels. Innovations here can occur in two ways: innovations within the firm’s current network and innovations that make new relationships necessary. The dimension of the hurdle rate exposes the relation between the costs and the minimal expected return (Koen et al. 2011, p. 54). Established companies pursue to sustain innovation in the space where they feel comfortable by drawing on their value networks and

the known financial hurdle rate. In contrast to incremental innovations, radical innovations are linked to many challenges that need to be overcome with an adequate learning strategy (Koen et al. 2011, p. 55). An effort to innovate for established companies might be to extend their value networks to target non-consumers (Koen et al. 2011, p. 59).

2.1.3 Examples of business model innovations.

Business model innovation has been intensively discussed in theory but how does it actually look like in real world? In the following, several examples of business model innovation are portrayed.

Speaking about business model innovation in practice, the case of Apple Inc. is an often quoted example. Apple that previously focused on producing innovative hardware, mostly personal computer, introduced its iPod and the corresponding music download business model of iTunes in 2003 thus adding music distribution as an activity to its business model. In just three years this combination was worth almost US\$10 billion and contributed to almost 50 percent of Apple's revenue (Johnson et al. 2008, p. 59). However, it was not just about the product, the real innovation was the convenience and easy access to downloading digital music. Apple managed to transform its business model by locking in its customers who had to buy the expensive hardware (iPod) to be able to use the relatively cheap consumer goods (iTunes). It was termed the reversed "razor and blades model" introduced by Gillette that sells cheap razors to lock in its customers and make them buy the relatively expensive blades (Johnson et al. 2008, p. 59).

The case of Hilti is another success story which benefitted from a business model innovation. Hilti AG designs, manufactures, and markets high-quality tools, machines, and equipment for construction, building maintenance, and mining industries primarily for professional end-users. In the late 1990s, Hilti noticed that commoditization of power tools made them appear as disposable for construction workers. Managing the tools became more difficult and was associated with higher costs which resulted in loss of sales for the company. Hilti then understood that construction businesses focus on finishing their projects and therefore seek to be able to use the tools in an efficient way. However, owning and maintaining the tools appeared like a burden. Recognizing the opportunity to shift its attention to customisation and convenience, Hilti introduced a leasing model for its power tools. The new value proposition promised to take care of the customer's tool inventory including repair and maintenance thus

ensuring that the tools are ready available for use. The customer would pay a monthly fee for this service. This “rent instead of buy” model which was adapted in most of the markets around the world contributes to a substantial part of the overall sales (Johnson 2010, p. 65f., 69).

However, attempts to innovate the business model do not necessarily end with success. Another widely studied example is Xerox, known as the copier company in the 1980s, which made leading copiers and printers. Xerox realised that consumables, especially toner and paper, represented a better source of revenues. Therefore, it stipulated that each machine should generate higher copy or print volumes with maximum machine availability. At the same time, Xerox performed many R&D activities in the area of man-machine interfaces as well as other aspects which were later integrated in the personal computer industry. The technology applied enabled the user to fix the copier without the help of a service technician. However, the company did not know how to use these technologies to improve the function of a copier. Sales managers did not see how to benefit from the research results. Some scientists even realised the projects themselves outside of Xerox. It should be noted that none of the valuable projects adapted a business model similar to the one of Xerox copier or printer. Xerox is a good example to illustrate the necessity that companies must develop the capability to perform a business model innovation, and innovate their ideas and technologies (Chesbrough 2010, p. 355f.). It is repeatedly happening that businesses from all areas are failing in monetising on unique growth opportunities if these chances do not exactly correspond with the familiar activities within the company (Johnson 2010, p. 6).

Additional examples of business model innovations that are worth mentioning are the computing solutions company Dell with its distribution system innovation or the low-cost carrier Southwest Airlines that decided to reduce the costs in flight travel experience by pushing its no-frills strategy (Teece 2010, p. 186).

2.2 Value creation through business model innovation.

In the following, the benefits for organisations from a business model innovation will be elaborated. An analysis of reports from approximately 500 Northern European companies revealed that firms with a strong strategic focus on business model innovation and replication proved more profitable on average than companies without this focus (Aspara et al. 2010, p. 39).

According to the 2012 IBM CEO Study based on face-to-face conversations with more than 1,700 chief executive officers in 64 countries, 33 percent of the respondents view business model innovation as a key source to sustained economic value (IBM 2012, p. 15). Especially the outperformers exhibit highly ambitious innovation goals. As compared to underperformers, outperformers are 48 percent more likely to move into other industries and twice as inclined to create entirely new ones (IBM 2012, p. 47).

It can be argued that the business model can promote innovation in two ways: firstly, business models function as vehicles for innovation as they help decision-makers to utilize novel technologies to bring an output to the market. Secondly, the business model can be viewed as a source for innovation itself. Innovative technologies themselves, however, have no economic value (Massa & Tucci 2013, p. 420, 424).

As every innovation, business model innovation is an arduous process. Implemented business models are often difficult to change. Firms cannot expect that the innovation itself will result in a larger competitive advantage. It is rather the opportunity of a business model innovation to yield new products or services at a lower price or an increased value for the target market. With this, companies will make a higher profit until competitors enter the markets with a copied business model (Teece 2010, p. 181).

Business model change is crucial for success as the company can benefit from new opportunities to create value but also to mitigate the risk of rigidity which captures a company that does not pursue change (Achtenhagen et al. 2013, p. 427). A company can change its business model continuously and incrementally over time or induce a radical change if no change has been made for a long time (Achtenhagen et al. 2013, p. 427f.).

Amit and Zott (2010) sum up the reasons for business model innovation for researchers and executives as a provision of underutilised source of future value for businesses such that new revenues can be created. With this, organisations can also differentiate from its competitors who will experience challenges to imitate a completely new activity system (Amit & Zott 2010, p. 5). A novel business model can create a new market or enable the company to exploit new opportunities in the existing environment (Amit & Zott 2010, p. 7). Osterwalder and Pigneur (2010) add that business model innovation serves to meet existing but untapped market needs

as well as to introduce new technologies, products, or services to the market (Osterwalder & Pigneur 2010, p. 244).

This being said, business model innovation comes at a cost that is not easy to determine beforehand. Costs for a business model innovation include entering strategic partnerships or intra-organisational change. However, it might be less costly when needful resources for R&D are lacking, e.g. in an economic crisis (Amit & Zott 2010, p. 3). Technological innovation, such as the advancement of broadband communication, help conduct business model innovation when used in innovative ways (Amit & Zott 2010, p. 4).

2.3 Design of new business models.

The following part highlights the various approaches in literature towards the design of new business models. Commonly, the creation of a new business model demands “creativity, insight, and a good deal of customer, competitor, and supplier information and intelligence” with experimentation and learning, trial and error being an inherent part of this process (Teece 2010, p. 187).

As a rather abstract approach, Massa and Tucci (2013) distinguish in business model innovation between designing new business models for recently created organisations and reconfiguring existing business models. However, it cannot be guaranteed that the efforts raised towards both directions will result in a business model innovation (Massa & Tucci 2013, p. 424f.). While business model design entails decision-making on product or market mix and organisational design for instance, reconfiguration is more concerned about how to overcome the rigidity hampering innovative changes in business models (Massa & Tucci 2013, p. 426f.).

The study by Cavalcante et al. (2011) identifies four different types of business model change: business model creation, business model extension, business model revision, and business model termination:

1. **Business model creation:** A business idea is transformed into a new venture (after several modifications). However, the lack of previous working standards to learn from is criticised and challenges might refer to the lack of relevant knowledge and capital, inter alia.

2. **Business model extension:** New activities are incorporated into an existing business model and existing key processes are expanded. The company can focus on exploiting market opportunities and new paths after having gained more knowledge and skills.
3. **Business model revision:** The existing process is interrupted and parts are removed and replaced with something else thus following a new direction. For instance, Kodak, producer of cameras and film, was confronted with the growth of digital technology and instead of developing digital technology within its company it acquired the knowledge through joint ventures with other companies.
4. **Business model termination:** Processes are removed or abandoned, e.g. a unit of a company may be closed down or even the entire company (Cavalcante et al. 2011, pp. 1331-1334).

In practice, it is not that easy to distinguish between these types of business model change and several combinations are possible. Managers are therefore encouraged to assess the wider impact of a business model change on the various core repeated standard processes. Typically, business model dynamics depend on an individual's initiative to recognise the need for change and his or her will to pursue such change. For this reason, business model change can only be executed through the individual's cognition and action. Subsequently, the crucial business processes need to be set up (e.g. production and sales) but also the auxiliary processes which support the key activities. It is further crucial to find ways to overcome hurdles to maintain the business model change and to develop it in the early stage. Individuals need to be involved in a business model change by applying new ways of thinking and using new abilities (Cavalcante et al. 2011, p. 1335ff.).

A new business model can replace the previous one or be implemented in parallel. Parallel implementation is suggested when tailored solutions are needed as it helps to mitigate possible risks. While many companies have an organisational unit for product innovation, a similar structure for business model innovation is rare. Often, formal processes are lacking and both internal and external resistance to change occur (Bucherer et al. 2012, p. 191).

According to Cavalcante (2014), changes in business models can also be understood as a way to play with business model variations without necessarily improving the organisational performance. Hence, he provides a guidance for business model change which is useful to analyse alternative scenarios of business model variations and to grasp how they are affecting the business model itself (Cavalcante 2014, p. 15).

Cavalcante suggests organising the design of business model change in three phases:

- Phase 1: Includes the (preliminary) identification of the key components of the firm's business model as well as the attached activities in order to understand the logic of the firm in a structured and comprehensive way. In addition, firms need to identify the corresponding processes and activities. Core elements of a business model typically involve interrelated central repeated processes with the central components value creation, modus operandi of the firm, and value capture.
- Phase 2: Refers to the outline of the change purpose and its effect on the core processes. The change initiative might affect only one component or in the extreme case all of the components.
- Phase 3: Includes the analysis of associated challenges and solutions to them. It is rather unlikely that a business model change initiative comes without any problems. The question here is how to deal with the challenges. At first, challenges that can occur both at an individual and organisational level need to be identified. In the first case, challenges can entail, e.g. cognition, emotional, and cultural aspects. In the latter, internal and external aspects are involved such as coordination of activities, financial issues or the legal ground for business model changes. Once the challenges are known, the organisation should strive to find solutions (Cavalcante 2014, p. 8ff.).

Firms are required to develop their capability to change, which creates innovative methods through experimentation and learning, and eventually results in relevant business model changes. It provides the opportunity to flexibly design and play with alternative developments which are critical for incremental or radical innovations (Cavalcante 2014, p. 16f.).

Business model innovation can either lead to serving a new market or it can help an organisation to draw on opportunities in existing markets. Level of change can differ greatly and does not need to be disruptive. Business model innovation can manifest in various ways (Amit & Zott 2012, p. 44):

1. New activity system "content": Adding (selecting) new activities (e.g. forward or backward integration).
2. New activity system "structure": Connecting activities in a new way (e.g. changing the sequence).
3. New activity system "governance": Changing one or more parties that are involved in execution of those activities (who performs the activities), e.g. in franchising.

There is to remark that these components may be highly interdependent and hence, they can be innovated individually or altogether (Amit & Zott 2012, p. 46). Overall, changing a company's whole activity system calls for a holistic and rather challenging approach as it allows managers to shape the activity system of the company (Amit & Zott 2012, p. 47f).

Giesen et al. (2007) distinguish between three types of business model innovation, in particular innovations in industry models, in revenue models, and in enterprise models. In the 35 cases the authors studied, they found that the majority performed an innovation in enterprise models by relying on external collaboration and partnerships. Especially, established companies made use of this strategy (Giesen et al. 2007, p. 27). The authors propose the following framework for business model innovation:

1. **Industry model:** Changing the industry's value chain, e.g. through a horizontal shift into new industries. For instance, Virgin has moved from music and retail into various industries like airlines and beverages, or Dell redefined the existing market practices by selling its products directly to customers. Also, new industries or industry segments can be created following the pathway of Google.
2. **Revenue model:** Innovating the way the company generates revenues by implementing new pricing strategies. The classical aforementioned example is the "razor and blade" model introduced by Gillette, which refers to selling razors at a low price to make customers buy the expensive blades.
3. **Enterprise model:** Reconfiguring the structure of the organisation and its role in established or newly developed value chains. This type of innovation is concerned with adjusting the organisational boundaries (Giesen et al. 2007, p. 27f.).

The financial analysis in the study revealed that all three types resulted in success in financial terms without significant difference among the three types of business model innovation. Challenges in business model innovation through collaboration were found to be linked to the continuous globalisation including aspects of culture, regulation, availability, and access to technology (Giesen et al. 2007, p. 30f.).

Linder and Cantrell (2000) embed the effect of time into their approach by illustrating how some business models evolve from their original position to a new desired business model. They denoted these models as "change models" which based on their degree of change are classified as: realisation model, renewal model, extension model, and journey model. While the

realisation model equals the status quo, the journey model features a high degree to which the core logic changes (Linder & Cantrell 2000, p. 11).

Another promising approach towards designing and evaluating business models is by assessing the risks associated with it. Two examples of business model risks are 1) firm dominant logic and 2) entrepreneur's heuristics. Risk evaluation should be part of the business model design and development conducted by managers and entrepreneurs on a regular basis. It can serve as an important source of knowledge in which a new business model can be conceived in accordance to the performance goals (Shi & Manning 2009, p. 50). Risks within business models are perceived at three levels: the business model element, between-element relationship, and the whole system. The three types of risks entail 1) uncertainties that can occur to each of the parts of the business model, e.g. price-performance ratio of a firm, 2) mismatch between components of a business model, e.g. new value proposition is not compatible with the limited access to necessary human resources, and 3) uncertainties that have an impact on the entire business model; these risks are perceived as existing outside of the model and might include, e.g. the political situation. These risks influence the firm's value of market, firm's share and sustainability in light of the competitive situation (Shi & Manning 2009, p. 54).

It is assumed that redesigning business models induces a move of competitive advantage from the internal system of the firm to its entire sphere of activity including external stakeholder as well, such as partners or customers (Zott & Amit 2013, p. 404). In fact, some competitors will follow their old approach for some time even though their rival's business model has changed. Business model improvement, replacement, and innovation hold potential to leverage strategies. Companies can either uphold the same business model and strategy for a long time (e.g. Southwest Airlines) or change their strategy regularly but preserve the same business model (e.g. Ford) (Mitchell & Coles 2003, p. 15f.).

Mitchell and Coles (2003) denominate a business model improvement a change of an element within the model which significantly leads to better firm's performance in terms of sales and profits. In contrast, a business model replacement is performed when at least four of the seven defined business model elements ("who", "what", "when", "why", "where", "how" and "how much") are changed. According to the authors, a business model innovation occurs when these replacements provide a novel offering for customers not available before. They refer to a sustained business model innovation process as continuing business model innovation (Mitchell

& Coles 2003, p. 16f.). Before 1990s, significant business model innovations were introduced by new market entrants, such as Southwest Airlines in low-fare air travel, and Starbucks in coffeehouse chains. These days, competitors can imitate new products and services faster making them not sustainably successful today. Besides, many companies in an industry have similar business models and follow same strategies to increase their efficiency (Mitchell & Coles 2003, p. 18f.).

Lastly, one may pay regard to the formation of e-business models as well. Gordijn & Akkermans (2001) propose the e³-value method to design e-business models. It is a value-oriented concept focusing on the essence of an e-business model. Also, it analyses relationships between a number of firms and includes e-business scenarios. What is relevant in the design of an e-business model, is the definition of the value proposition, the arrangement of the operational processes, and the underlying IT infrastructure that mediates the processes (Gordijn & Akkermans 2001, p. 11).

In sum, one can see the variety of how new business models can be formed. Different actors shape the business model at different moments in the timeline, some components of the model remain unchanged, others form variations with other components thus creating new markets (Mason & Spring 2011, p. 1038). The problems of business model innovation are associated with lack of extensive formal study on the dynamics and processes of business model development, as well as lack of proper understanding of existing business models by managers (Johnson et al. 2008, p. 60).

2.4 Implementation of business model innovation.

Ensuing from the theoretical approaches on how business model can be designed, this part takes on the process of implementation of business model innovation. For business models, the typical innovation process composed of the three stages idea generation, idea development, and commercialization can be applied (Muller et al. 2012, p. 35). While the idea generation phase pursues to gather as many ideas of high quality as possible, both incremental and radical, the last stage serves to putting the assumptions about the perceived opportunity to the proof (Muller et al. 2012, p. 36).

2.4.1 Initiating business model innovation.

One important aspect regarding business model innovation is connected with the question, who should be responsible to initiate a movement and to lead the business model innovation. On the one hand this person should have an authority over the whole organisation as interactions between several divisions will take place. On the other hand, a person with a high authority has probably been part of the development of the current business model. Therefore, he or she might feel too comfortable with the present state and is more likely to avoid changes and to uphold the prevailing value of the organisation (Chesbrough 2010, p. 361).

Business model innovation must take place by involving all top leaders in a company in order to fill the leadership gap that has been observed in the past. In the beginning of a business model innovation process, it is recommendable to confer the resources required and the decision-making to the chief executive who is entitled to arrange business model experiments. As other units would be affected by these experiments, a potent and collaborative environment should be established. Moreover, it should be provided that this procedure does not overlap with the company's core business operations so that it might be reasonable to finance the business model variations with a separate budget. Once the new business model proved successful, it should be extended within the company, which also reinforces the competition for resources with the existing business model. However, it is essential to recognize if the new business model is workable on a larger scale as well (Chesbrough 2007, p. 17).

Demil and Lecocq (2010) provide three suggestions for managers for dealing with business model dynamics: 1) to control the risks and uncertainties which could influence the business model by permanently analysing the environment and the firm's internal changes, 2) to anticipate possible outcomes of emerging changes by gaining knowledge on the pattern how the different trends might affect the business model in future, and 3) to direct the emerging change to consistency between business model components by adjusting or redesigning the components in order to maintain or improve firm's performance. The challenge here is to balance the business model consistency and the impact of the continuous changes. The authors denominate this goal as "dynamic consistency" between the main components (Demil & Lecocq 2010, p. 241).

Taking into account one analytical approach to the inception of business model innovation, managers can systematically dismantle the prevailing business model and assess each

component by raising suggestions of amendments. In the end, the detailed components must be integrated into interdependence among themselves, the market environment, and the pattern of the technological development in the particular sector (Teece 2010, p. 188).

Altogether, to realise business model innovation in practice, managers are encouraged to ask questions about the objective of the new business model, its content, structure, governance, value creation for each of the partners, and the revenue model (Amit & Zott 2010, p. 12).

2.4.2 Concepts of business model innovation practices.

In his explorative study, Mezger (2014) focuses on how companies can engage in business model innovation in a systematic and purposeful way. Therefore, semi-structured interviews with industry experts from six firms were conducted, sequencing an informal follow-up with e-mails and short phone calls. Further, data was collected through archival reports and presentations. The interviews addressed questions about the interviewees' understanding of the business model concept, the general relevance of business model innovation in the company, firm-specific processes and practices on business model innovation and finally, the development of organisational resources and capabilities in the course of the innovation procedure (Mezger 2014, p. 432f.). The results revealed that firms were focused on the business model level, striving to innovate their value proposition or revenue models than simply emphasise product and process innovations. Prioritizing developments on the organisational level enabled the companies to gain deeper technological and market knowledge and to detect new methods of commercialising this knowledge. Firms also established new organisational processes and structure to accommodate the changes. The case studies unveil three major dimensions of capabilities related to business model innovation: 1) finding opportunities for new business models, 2) configuration of a new business model to meet this opportunity and 3) implementation of the new business model (Mezger 2014, pp. 437-441).

These dimensions support the framework by Teece (2007) who formulated the categories of sensing, seizing, and reconfiguring for the dynamic capabilities essential to promote change (Teece 2007, p. 1319).

Systematic business model innovation can be perceived as an iterative process of idea generation, developing and testing the ideas backed by novel business model designs (Mezger 2014, p. 441). Acquisition of start-ups has manifested itself as a means to integrate needful

resources. In contrast to an experimentation approach, this framework helps to tackle business model innovation in a more systematic and institutionalized way. Firms need to decide on which resources are inevitable for the adoption of a new business model in order to acquire them consciously (Mezger 2014, p. 443ff.).

Companies who can obtain the technological know-how and apply it to their business model components are more likely to discover possibilities for new business models. Another course of action is to analyse the business models of competitors (Mezger 2014, p. 438f.). Insights about customers' perception of new business models can be obtained through a frequent and fast-paced institutionalised exchange with key customers. The spread of digital media calls for enhanced competences in ICT, especially online marketing, mobile applications or digital printing (Mezger 2014, p. 440f.).

Companies can pursue to obtain formal IP rights for specific business methods embedded within a business model, in particular if these methods resort to novel applications of ICT. For instance, Amazon patented its "one-click" business method (i.e. the customer's order is placed automatically based on the one-click settings) as it is considered functional in the business model. This alludes to the fact that business models are strongly connected with the underlying methods (Desyllas & Sako 2013, p. 101, 103).

According to Desyllas and Sako (2013), firms develop some specialized complementary assets that are crucial for the success of the business model and that adapt to the changing market environment. Hence, firms need to exploit their dynamic capability and align these assets with the market environment in order to stay competitive permanently. The authors remark that these complementary assets that are prerequisite for the implementation of a novel business model might lack at the beginning but are developed and shaped in the course of the process. These assets can be built through formal IP right protection which helps capture value in the business model innovation process (Desyllas & Sako 2013, p. 112f.). The decision to invest in a business model innovation is further affected by the demand to benefit from the new business model by avoiding imitation. Especially protecting firm-specific assets such as distribution networks, brand names, or after-sale services is a mechanism dedicated to preserve the company's core knowledge. The authors advocate the strategy of capturing the value that results from a business model innovation (Desyllas & Sako 2013, p. 102, 113).

One fundamental aspect to business model innovation is a profound knowledge about customer needs including several alternatives, processes along the value chain, possible changes in costs configurations as well as the potential impact of competitors. Making use of multiple types of market research is recommended to support the innovation efforts (Teece 2010, p. 187, 190).

There are different opinions on the potential reaction of existing market rivals. Competitors may be able to copy a particular product easily but would probably struggle to imitate a new business model (Amit & Zott 2012, p. 42). On the other hand, it is argued that implemented business models that prove successful are likely to attract imitators within a short period of time as the key elements of the model are easily understood. Hence, prosperous business models become “shared” and executed by several agents on the market (Teece 2010, p. 179).

Concluding, adapting the business model perspective a holistic procedure towards business operations as compared to focusing on particular functions is recommended. The firm’s partners can support the focal company perform necessary activities (Amit & Zott 2010, p. 2f.). The strategic adaptation to environmental changes affects the success of the firm in the long run (Wirtz et al. 2010, p. 273).

2.4.3 Learning by trial and error.

“I have not failed. I’ve just found 10,000 ways that won’t work” is the famous quote by Thomas A. Edison which affirms that the path to success is not a straightforward one but often leads to deadlocks. But what is actually a promising way to engage in business model innovation? Companies are requested to engage in experimentation to identify new and more suitable alternatives of the existing business model when some flaws have become visible (Chesbrough 2010, p. 357). It is even likely that a company needs to undergo a repetitive process of trial-and-error to reach the appropriate business model (Desyllas & Sako 2013, p. 103; Chesbrough 2010, p. 356). The design process is expected to proceed in a flexible manner with the business model being adapted to the challenges that emerge along the way (Cavalcante 2014, p. 17).

One approach towards a new business model lies in building maps of business models in order to draw a clear picture of the underlying processes, which can serve as a basis to conduct further experiments. This approach links to the nine components idea of a business model as proposed by Osterwalder. Chesbrough also refers to the concept of “component business modelling” adopted by IBM that allows simulating variations of the business model. Here, many specified

underlying processes come to light offering a detailed overview of the various options that can be included in the decision-making (Chesbrough 2010, p. 359).

Sosna et al. (2010) report the case of Naturhouse, a retail outlet of the Kiluva Group, a Spanish family-owned dietary products business. In the beginning, the business model did not reach success on the market and within a period of five years only four outlets were opened. The CEO of the company then changed his strategy. He adapted a learning, trial-and-error-approach, experimented with variations of the business model relying on the feedback the market provided to organisational changes. However, once the model was polished, the company scaled up and established up to 1,508 outlets over the next ten years, with an increase of revenues from €4.8 million in 1997 to €140 million in 2007. The company also expanded internationally and could prove its business model in different external conditions. The authors posit that experimentation with the business model is essential when an established business model is becoming obsolete. They call for individual and organisational learning as well as low-cost experimentation. The initiative for change can stem from the top management, however, it must be diffused to all levels of the company to be a shared notion in the entire organisation (Sosna et al. 2010, p. 385).

Sosna et al. base their depiction on a single case study design and segment the development process into four phases. The reconfiguration of Naturhouse's business model included:

1. The exploration phase: Here, the initial business model was designed and tested. The entrepreneur's character defines the further development of the company; resilience is required but light failures can motivate entrepreneurs to pursue risky actions.
2. The phase of business model development: "Intelligent failures" feature a modest and uncertain outcome with the possibility to learn from them.
3. The phase of exploitation: Aims at scaling up the fine-tuned business model. Individual and group knowledge should be incorporated into the entire organisation and transformed to organisational knowledge. Also, shared beliefs and understandings are framed which serve as a base for implementing strategic decisions.
4. The phase of exploitation and further exploration: Aims at sustaining growth through learning of the organisation. A working business model is not a guarantee for sustainability such that business model changes would still be needed to maintain the competitive advantage and increase profits and leaders must be committed to engage in business model experimentation again. Concentrations of power within a company

might prevent from engaging in activities that promote business model change. Finally, it should be noted that the duration of experimentation depends on the scale of the company. Start-ups, for instance, would not have the opportunity to conduct experiments for a long time (Sosna et al. 2010, pp. 388-402).

Experimentation is crucial for firms, as it is not possible to know in advance which direction to take with a business model innovation. Mostly, the evolution of business models is path-dependent (McGrath 2010, p. 253f.). McGrath (2010) suggests having conversations with leading technologists who think about future scenarios, with people who have knowledge on indirect competitors (e.g. who compete for resources), and conversations with non-customers (McGrath 2010, p. 257f.). New entrants are more likely to capitalise on novel business models whereas incumbents appear to lack incentives to search for a business model innovation (McGrath 2010, p. 260).

When entering a stage of experimentation, companies need to regard the direct costs linked to the testing, the indirect costs related to the case of failure, the time to receive feedback from the trial, and the information gathered throughout the process. Overall, the authentic conditions of the experiment play a pivotal role when performing the search for alternative business models (Chesbrough 2010, p. 360).

Achtenhagen et al. (2013) present a longitudinal study of 25 small and medium-sized firms ranging from manufacturing to software. Through a systematic within and cross-case analysis they identified aspects of successful business model change. They conducted semi-structured interviews with top managers and other key actors in the companies. The objective was to investigate strategizing actions, capabilities, and activities that contribute to business model change thus leading to profitable growth of the company. They propose an integrative framework in which critical capabilities for successful value creation are coupled to strategizing actions to create sustained value creation. Strategizing actions comprise, e.g. focus on growth with strategic carefully selected and executed acquisitions, expansion along different dimensions, combinations of cost-efficiency possible through operational excellence and high-quality (Achtenhagen et al. 2013, p. 431). The authors identify experimentation and exploitation of new business opportunities as essential capability (e.g. performing active market research). Experimentation requires many resources (e.g. financial) but a balanced use within different types of resources such as financial, human, and organisational knowledge (Achtenhagen et al. 2013, p. 435f.). Other critical capabilities are an active and clear leadership style, a strong

organisational structure (including shared norms, otherwise groupthink and a too strong leader's presence can be fostered), and employee commitment. The researchers also found that strategizing actions and those necessary capabilities complement each other such that value creation can be sustained. Leaders are highly encouraged to live the values and show commitment to the employees (Achtenhagen et al. 2013, p. 437f.).

Experimentation is even more crucial for start-ups who are seeking a repeatable and scalable business model (Blank 2013, p. 67). The "lean start-up approach" which has gained popularity in the past few years was designed to tackle this challenge. It encourages young ventures to test hypotheses, accumulate early and frequent customer feedback, and practice agile development that implies to create the minimum viable products with only critical features for testing. This methodology has the advantages that it supports start-ups in producing products that meet the customers' needs faster and cheaper, and it is less risky as compared to traditional methods, such as writing a business plan. Overall, it contributes to an entrepreneurial, innovation-based economy and is applicable in large corporations as well (Blank 2013, p. 67ff.).

2.4.4 Evaluating the business model innovation performance.

Giesen et al. (2010) uncover some aspects of a successful business model innovation. In their opinion, such business models are 1) well aligned both internally and externally, 2) underpinned and monitored with analytics, and 3) designed to be adapted in practice (Giesen et al. 2010, p. 20). However, it is not clear how the business model innovation performance can be evaluated.

First of all, how should an organisation decide if it should initiate a business model innovation? Decision on investment typically aims at calculating the return on investment (ROI) representing a function of uncertainty. ROI is computed as the net present value of free cash flows divided by the net present value of the investment deployed. Business model innovation should be executed in case the company can increase its profits. Potential income for the future should be estimated. However, it is a challenging task to estimate the cost of implementation and the company can make use of proxy estimates for the investment and associated risk. The degree of change of the business model plays a major role here as well (Evans & Johnson 2013, p. 53).

Evans and Johnson (2013) introduce the use of the Innovation Readiness Level (IRL) for business model innovation. Their idea is that every function within the company needs to

develop the capabilities necessary for the new business model, which could be measured with this metric. The IRL draws on the Technological Readiness Level concept (cf. Mankins 1995), which was adopted by, e.g. NASA to evaluate and impart the degree to which an organisation has developed the crucial technical capability available for practical use. The IRL is an instrument useful for the evaluation of an organisation's developed capabilities to perform a business model innovation. Typically, some functions within a company are able to cope with change better than others which can be captured with the IRL (Evans & Johnson 2013, p. 53ff.).

Evaluation and metric of the business model is an essential element of the framework. Business models have not been validated in research literature so far and no metric framework for the evaluation has been developed yet (Burkhart et al. 2011, p. 13). Measurement of the degree of the business model innovation can be performed by comparing one's own business model with the one of the competitor or with another benchmark model. It would be also possible to include different criteria such as the application of a new technology (Burkhart et al. 2011, p. 10). After the innovation implementation, business models need to be evaluated once again to their relevance and achievement potential, especially in fast-changing environments (Leih et al. 2015, p. 11).

Despite the risk of a business model imitation, some aspects should be stated that might prevent firms from replicating the successful models of the competing agents. For instance, some systems or assets are difficult to imitate or incumbent companies might refrain from imitation, which may provoke cannibalisation effects for existing profits or a restructure of the established business network. Only new entrants without any such concerns are likely to adapt the business model of a successful competitor (Teece 2010, p. 182).

Giesen et al. (2007) show that agents can be easily added or removed from the buying and selling process (for instance intermediaries such as brokers) and therefore, is it important to show how value is created between specific actors. They highlight that e-business models are more flexible in innovating as compared to traditional businesses. In their approach, it is possible to model core elements such as prices and actors. Particular economic actors play an important role as, for instance, companies can just turn to another supplier due to low switching costs (Giesen et al. 2007, p. 13). However, when interaction takes places regularly buyers and sellers can form a relationship. Once the seller established this relationship, he or she can offer the customer more personalised products (Giesen et al. 2007, p. 15). Bundling and unbundling

is regarded a typical key activity in e-business suitable for digital products and services. An e-business model is feasible when all involved parties obtain an economic value or benefit financially. One method to evaluate an e-business model is to calculate all the net in and out flows. Further, what-if scenarios to identify strengths and weaknesses can be employed and the sensitivity of the e-business model in financial regard or future trends assessed. These lines of action can provide support to compare the changes in value, as well as changes in the parties' behaviour and in the activities (Giesen et al. 2007, p. 16).

2.5 Influencing factors of business model innovation.

2.5.1 Market conditions.

Factors that define the ability to successfully innovate the business model have been widely examined through empirical research (Lambert & Davidson 2013, p. 676). Successful business models appear as if they became successful immediately which does not correspond to reality as difficulties especially at the exploratory and implementation stages occur. First of all, market development is characterised by uncertainty and unpredictability. It can be generally stated that sustainability of any business model is uncertain as it underlies market dynamics, which can decrease profitability. Continuous business model change is therefore the key to achieve long-term success. Several studies have pointed out that initial business models are often revised. It is argued that most of the original business models are modified in response to external stimuli until an appropriate model is found that meets the goals. However, a firm's initial business model would be influenced by the founders' educational and working background (Sosna et al. 2010, p. 384).

According to behavioural theories of the firm, past experiences of a company impact and shape their future actions. However, individual interpretations of executives also interact with the established organisational working practices (Sosna et al. 2010, p. 386). It can be assumed that managers are inhibited by their own bounded rationality. Sosna et al. (2010) state that existing routines can be influenced by trial-and-error experimentation and organisational search (Sosna et al. 2010, p. 386).

Bohnsack et al. (2014) examine the impact of incumbent and entrepreneurial companies' path dependencies on the development of business model for electric vehicles based on a qualitative analysis of electric vehicles of major actors in the industry. The authors focus on all electric

vehicle projects (i.e. cars driving on battery power alone and plug-in hybrids) of all major industry players from 2006 to 2010. They use the business model framework with the components value proposition, value network, and revenue/cost model. They note that, for instance, conventional economy electric vehicles made several incremental changes such as leasing the car or incorporating government incentives to reduce the retail price. Also car-sharing programmes and the service component of renting or leasing the battery separately from the car have become popular. The vehicles are associated with high investments costs for users (Bohnsack et al. 2014, p. 22f.). Especially in the economy segment, customers needed to be compensated for the high investment costs of the car, the limited driving range or the charging time. Car manufacturers often referred to their existing business model for conventional cars as basis, and incrementally adapted it to the special features of electric cars, which is associated with path-dependent approach (Bohnsack et al. 2014, p. 25). Particularly, new entrants had to be creative in finding ways to provide financial resources for their operations. They made use of government loans and venture capital and benefitted from governmental programmes. One radical movement of Daimler was to start its car2go car-sharing initiative (Bohnsack et al. 2014, p. 28, 32).

One major influencing factor on business model innovation is the status of the organisation, i.e. if it innovates as an incumbent or emerges as a new entrant. Bohnsack et al. (2014) found that while incumbents could rely on their value network and revenue model, new entrants had alternative marketing channels (Bohnsack et al. 2014, p. 29). Development of the battery technology further influenced the business model evolution (Bohnsack et al. 2014, p. 34). Incumbents could respond faster to government programmes and they could leverage their dealer network. Also, they could rely on internal revenue streams to fund their projects (Bohnsack et al. 2014, p. 37).

Albeit, new entrants have better chances to succeed in the market, if they employ an innovative strategy rather than imitating strategies used by incumbent players in the field. One example is the company Enterprise Rent-a-Car, the largest car rental company in North America. Instead of targeting travellers like its competitor did, Enterprise focused on the replacement market. Thus, customers who had an accident could make use of the rental service. It also positioned its locations in downtown areas instead of airports. Moreover, it partnered with insurance companies and body shop mechanics and used them as channels to reach its customers. The later a new entrant becomes active in a market, the more difficult it is to find an innovative

business model that would help to stand out from all its established competitors (Markides & Sosa 2013, p. 328, 330).

It is suggested that start-ups are likely to implement modifications easier as they do not have as many fixed assets and established positions to transform. Especially, online-based companies are concerned as well as situations in which firms can obtain fast feedback through social media (Leih et al. 2015, p. 11).

Finally, Euchner and Ganguly (2014) posit that the firm's business model is highly dependent on the competitive environment. Therefore, the competitors' behaviour also affects the margins and growth of the company. Business model innovation can build a new market or disrupt the existing market, in particular the competitive advantage of the major rivals. To achieve this, the firm needs new capabilities. The innovation is not simply successful when the business model is established but also when it can be maintained in a potentially resisting environment (Euchner & Ganguly 2014, p. 33f.).

2.5.2 Absorptive capacity.

When a firm is engaged in a business model innovation process, it is simultaneously involved in a learning process. Learning requires a knowledge transfer either from within or outside of the organisation. Simon (1991) observes that learning takes places in each individual's mind such that the firm obtains new knowledge through its existing employees or through the recruiting of new members (Simon 1991, p. 125). However, as it will be seen in the chapter on open innovation and crowdsourcing, there are other feasible mechanisms. What is important, is that fact that knowledge is differentiated between tacit and explicit knowledge. Tacit knowledge can be perceived as "knowing how" and as such becomes apparent through its application, whereas explicit knowledge concerns knowledge about facts and thus can be directly communicated; it is the transferability of these two types of knowledge which makes the significant difference between them (Grant 1996, p. 111).

However, for an organisation it is not only critical to gain access to internal or external knowledge. The company also needs to have the capability of exploiting this knowledge which is referred to as "absorptive capacity". This ability is derived from the level of knowledge that existed before embracing primarily basic skills but also the recent scientific development and technological progress. Other relevant factors of the organisational absorptive capacity are the

absorptive capacities of its individual members and the information flow within the company which depends on the structure of the corporate communication (Cohen & Levinthal 1990, p. 128, 131).

2.5.3 Effects of culture and organisational structure.

Bock et al. (2012) address the impact of culture and structure on strategic flexibility in business model innovation by analysing the data from the 2006 IBM Global CEO Survey. The survey aimed towards the study of benefits of innovation and collaboration in the organisational context. Data contains semi-structured interviews with CEOs of multinational corporations from various countries and industries. The sample comprises 107 companies whose primary innovation effort was directed towards business model innovation and 449 further CEO interviews on product and process innovation (Bock et al. 2012, p. 285). The results showed that internal structural changes include delegation (e.g. third-party operating facilities or shared services agreement), consolidation (i.e. non-key activities are eliminated through outsourcing), and reconfiguration (through use of state-of-the-art technology or enhanced decision-making). Decentralized decision-making through delegation as well as a creative culture have a positive influence on strategic flexibility, in contrast, reconfiguration is negatively associated. These activities do not require giving up control over the innovation process. Being dependent on a partner was found to reduce strategic flexibility (Bock et al. 2012, p. 291f.). Since organisational design and structure are major aspects of business model innovation, these results are more in line with business model innovation as a dynamic capability than a knowledge-driven process (Bock et al. 2012, p. 299).

2.6 Barriers to business model innovation.

Since not every company initiates a business model innovation, there is to question why. Without any doubt, business model innovation implicates several barriers that need to be overcome.

Business model innovation is a complex process requiring time, resources, and above all the willingness of all actors involved to implement it thoroughly from the beginning to the end. One can think of various reasons why companies do not perform business model innovations. For instance, it has become evident that organisations lack a responsible person who is in charge of business model innovation. Naturally, it requires the engagement of the senior management

for the realisation but also a substantial amount of time to carry out business model experiments that can be tested in order to select the most promising line. Another problem is that managers tend to get used to the current business model and to its related advantages that it becomes difficult to urge the new business model in between that will hardly be accepted (Chesbrough 2007, p. 16).

Thus, over time, a firm succeeds in establishing certain configurations of firm assets and an innovative approach might create a conflict with this traditional arrangement (Chesbrough 2010, p. 358). This conflict can also be found in Christensen's concept of "disruptive technology" that contrasts the existing technology with the new, disruptive technology and its challenges. It can be expected that the gross margins of the disruptive technology are much lower than compared to the existing technology. Further, there might be new end consumers and distribution channels. As companies tend to allocate its resources to the option considered most profitable, the disruptive technology is unlikely to find approval (Christensen 1997, p. 12).

In addition, a cognitive barrier can be mentioned which is based on the argument that the success of the established business model has a high impact on the information that is processed in the further decision-making. The firm is likely to act in line with this success and hence, will filter out the information that might put a risk to that success. Especially, in a state of high uncertainty this logic provides a major support for the firm (Chesbrough & Rosenbloom 2002, p. 550).

Moreover, business model innovation is associated with a high risk as it can provoke the architectural change of all business model components (Massa & Tucci 2013, p. 434). In fact, deliberate decision on business model changes can provoke unintended continuous changes that cannot be controlled by the management (Demil & Lecocq 2010, p. 239). These changes may be impacted by the environment, and by internal dynamics of the business model itself. Moreover, the desired changes may entail unanticipated effects as well. There is to note that such emerging change may be of negative nature as well which can cause harm to the business model. Overall, the evolution of a business model may both enhance and reduce firm's performance since some changes might emerge that have not been explicitly introduced by the executives (Demil & Lecocq 2010, p. 239f.).

Some companies encounter structural constraints, e.g. in case they want to advance their sustainability but do not benefit, as the market does not respond positively to it. Other problems might arise due to network externalities. For instance, electric vehicles are useless if crucial complements such as battery charging stations are not provided for customers (Massa & Tucci 2013, p. 430).

Furthermore, it is possible that a company pursues a business model innovation to follow a serious competitor. However, novel business models are difficult to imitate, time-consuming, and arduous. Also, the business model needs to correspond with the company's long-term strategy, corporate culture, and core competencies (Bucherer et al. 2012, p. 183).

In addition, the question arises on how to evaluate the potential risk of a business model innovation. It is important that those ideas for an innovation initiative are considered which have the highest return and the risk-return profile should correspond with the company's objectives. Even if the idea implementation appears feasible, it is associated with high uncertainty regarding financial aspects such as investment, revenue, or price. The challenge is especially complex in case a company plans to undergo a fundamental restructuring. It is obvious that all corporate divisions are subject to change which demands to be coordinated properly (Evans & Johnson 2013, p. 52).

To conclude, this chapter shed light upon the innovation of business models. It pointed out the origins of business model innovation, the typology of innovations and what purpose could be pursued with the process. It also emphasised the different approaches on how new business models could be designed thus granting the initiator not only an ample scope but also systematic guidelines. The implementation of business model innovation was another focus of this chapter, including the phases from the inception to the evaluation of business model innovation. It was signalised that learning by trial and error formed a crucial part in the innovation process. Moreover, several aspects were exposed which had an impact on the business model innovation, such as the market environment, the capacity to absorb the gained knowledge termed absorptive capacity, as well as the effects of culture and organisational structure. Finally, major constraints to business model innovation primarily of organisational, cognitive, and environmental nature were mentioned. The next chapter proceeds to the second significant topic of this thesis, which is crowdsourcing.

3 Crowdsourcing as part of the innovation process.

It is beyond dispute that the rise and vast distribution of the Internet spurred by the technological progress increased the flow of information across the world. It has never been so easy for organisations to access information that lies outside of their corporate boundaries. In fact, the web is a crucial technology facilitating worldwide communication and coordination of individuals, motivating a special kind of thinking and stirring innovation (Brabham 2008, p. 81). On that account, companies are increasingly relying on external sources of knowledge and therefore, collaborate with individuals or teams that are endowed with the relevant knowledge (von Hippel 2005, p. 15; Chesbrough 2006, p. 1f.). Further, the slackening strategic advantage of internal R&D is rooted in the higher mobility of experts thus impeding firms to monitor and to take possession of their R&D investments (Laursen & Salter 2006, p. 132).

Both, academic and specialist literature has been massively published over the past years investigating the dynamics of crowds and how organisations can make use of them for their business activities. It has become obvious that crowds have an enormous potential which can be applied to, for instance, raise funding for a start-up project on Kickstarter, a global crowdfunding platform. Crowds can also be used as a basis for commercial activities. One wide-spread business model is to outsource the key resources to the crowd and to operate as a broker to connect the crowd providing those key resources (i.e. housing in the AirBnB business model or time and skills in the TaskRabbit business model) with customers who are seeking for this value proposition. However, crowds can also have a negative effect since they are able to respond to an organisation's activity in a disapproving way which in light of the well-connected world through social media can diffuse easily by word of mouth. One famous example is the campaign "Give the Orang-Utan a break" initiated by Greenpeace in March 2010 to raise awareness of the endangered habitat of orang-utans in which it publicly declared Nestlé as the culprit due to its continuous purchases of palm oil from destroyed rainforests. The campaign triggered a dramatic public outrage especially on social media websites leaving a negative imprint on the company's reputation (Kreutzer & Hinz 2010, p. 33f.).

In his book *The Wisdom of Crowds* Surowiecki (2005) outlines several cases of crowd wisdom where the successful solution is provided by a large number of contributors. For example he reports the case of the U.S. submarine Scorpion which got missing on its way back after a tour of duty in 1968. The navy began a hopeless search but Scorpion was not found until a naval officer came up with a brilliant idea. He asked a team of men with a miscellaneous expertise to

guess the likelihood of possible scenarios that he had devised beforehand. The given answers were assessed by means of the formula Bayes' Theorem which resulted in the approximate collective estimate where the lost submarine might have been. Indeed, the submarine was found 220 yards away from the estimate (Surowiecki 2005, p. xxv.). Surowiecki believes that "under the right circumstances, groups are remarkably intelligent, and are often smarter than the smartest in them" (Surowiecki 2005, p. xiii). With reference to decision-making based on crowd solutions, the solutions are not meant to be averaged as it would make them mediocre, but rather to be aggregated (Surowiecki 2005, p. 11). Another popular buzz word is "collective intelligence" which is anticipated to "gradually alter the ways commodity culture operates" (Jenkins 2006, p. 27). According to Lévy (1997) "collective intelligence" is a "universally distributed intelligence" in which "no one knows everything, everyone knows something, all knowledge resides in humanity" (Lévy 1997, p. 20).

3.1 The open innovation paradigm.

Speaking about collective intelligence, the open innovation paradigm emerged in the innovation landscape in the past years. Open innovation is a general term embracing various strategies of receiving external inputs, such as crowdsourcing, open-source projects, patent acquisition, supplier integration, or venture investing. In order to reap the benefits of the open innovation mechanism, organisations need to select the types of open innovation that fit best to their demands (Muller et al. 2012, p. 35).

Open innovation is a term coined by Chesbrough (2003, p. 24) who provided the following definition:

Open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology.

According to the understanding of Baldwin and von Hippel (2011), an "open collaborative innovation project involves contributors who share the work of generating a design and also reveal the outputs from their individual and collective design efforts openly for anyone to use" (Baldwin & von Hippel 2011, p. 1403). Design in this case is referred to as the structure determining the way of creating an innovative product or service.

In the open innovation model, three core processes have been determined. Firstly, the *outside-in process* implicates that a company incorporates external ideas and technologies into the own business model. Secondly, the *inside-out process* denotes that a company shares its own ideas,

sells its IP, and brings technologies to the market. Thirdly, the *coupled process* constitutes a combination between the outside-in and the inside-out process and enables the company to co-create with primarily complementary partners. Examples for such partnerships are alliances, cooperation, or joint ventures (Enkel et al. 2009, p. 312f.).

Typically, innovation originates in creative ideas that can be gathered from different sources such as individuals or collaborative networks, which are consequently transformed in modifications of products, processes or services (Marjanovic et al. 2012, p. 2). Open innovation draws on the notion that innovation must be cultivated in an environment without constraints to creativity and “out-of-the-box” thinking. Especially, severe competition and the need of efficient processes call for opportunities of knowledge acquisition outside of in-house R&D. However, open innovation is not evolving to substitute internal R&D activities. Increasingly, a transparency in the communication between customers and companies has developed which consequently advances openness due to the wide access to information customers have these days. Prior to resorting to open innovation, an understanding on how the quality of an innovation process can be improved by approaching and leveraging the knowledge of unused contributors needs to be developed (Marjanovic et al. 2012, p. 2).

It is believed that producer innovations are more endangered by open collaborative innovation projects than single-user innovators as they can reach the scale of a producer’s design and provide a free design that is brought to the public thus putting a pressure on the producer innovator to reduce the price (Baldwin & von Hippel 2011, p. 1411f.).

Lakhani et al. (2007) studied openness and free information sharing in a scientific knowledge context and found that involving external scientists resulted in a 29.5 percent resolution rate for problems that could not be previously solved in internal R&D laboratories of 26 firms (Lakhani et al. 2007, p. 4). Also the findings revealed that the farther the solvers assessed the problem from their own field of expertise, the higher the probability was for them to contribute a winning idea (Lakhani et al. 2007, p. 10). This aspect of closeness of the searching agent to the solution of the problem will be explored later in this thesis.

Another study with 144 companies in 2008 revealed that the primary knowledge source are clients (78 percent), followed by suppliers (61 percent), competitors (49 percent), and finally public and commercial research institutions (21 percent). Moreover, about 65 percent of other

sources include non-customers, non-suppliers, and partners from other industries (Enkel et al. 2009, p. 312).

Speaking about the costs involved, generally, four major costs can be related to an innovation process; these are costs for design, communication, production, and transactions (Baldwin & von Hippel 2011, p. 1403). One important advantage of open collaborative innovation is the fact that each participant bears the costs for only one determined part of the work while benefitting from the overall result with the work added by others. Additionally, not only innovation related values are created but participants also profit by learning, reputation, and fun as further side benefits (Baldwin & von Hippel 2011, p. 1406). Since communication is a driving force behind open collaborative innovation projects, and participants need to communicate with each other rapidly and continuously, the costs therefore play a major role in the question whether such projects are viable. With the rise of the Internet and the reduction of communication costs, however, this concern could be alleviated making the model of open collaborative innovation more feasible (Baldwin & von Hippel 2011, p. 1407). There is to assume that also design costs may fall in future which is due to further technological development (Baldwin & von Hippel 2011, p. 1410). Process-related rewards and motivation of participants to associate to an open innovation project will be discussed in the context of crowdsourcing activities.

3.2 Theoretical frameworks on search mechanisms.

Within the knowledge-based theory of the firm it is argued that problem-solving effectiveness plays a pivotal role for an enhanced organisational performance (Nickerson & Zenger 2004, p. 617). Although most problems can be solved by combining internal search mechanisms, for reasons such as lack of appropriate knowledge, lack of capacity or need for novel ideas, companies do not have the ability to tackle the faced issues themselves and as a consequence shove them outside (Jeppesen & Lakhani 2010, p. 1016). Companies may choose to initiate a problem-solving process by broadcasting the problem to the crowd and leave the resolution to self-selected individuals (Jeppesen & Lakhani 2010, p. 1016). Literature on evolutionary economics also indicates that a firm may improve its ability to innovate by being open to its environment (Laursen & Salter 2006, p. 133).

It is suggested that search activities of different companies underlie a sum of past and present managerial choices on the optimal search for and the development of new products. Hence, the

success of the previous experience determines the organisation's future search processes (Laursen & Salter 2006, p. 134). However, this fact may produce a detrimental outcome as it can prompt the firm to do an over-search (Laursen & Salter 2006, p. 135).

Laursen and Salter (2006) suggest the concepts of *breadth* and *depth* as the components of the openness firms exercise within their external search strategies. Breadth is defined as the number of external search channels and depth implicates the extent to which companies draw deeply from the various external sources (Laursen & Salter 2006, p. 134f.).

Afuah and Tucci (2012) modelled the solution search as an image of special dimensions. The focal agent can search for solutions within his neighbourhood which is considered a local search or outside the neighbourhood which is distant search (Afuah & Tucci 2012, p. 357). Local search is often related to the term exploitation whereas distant search to the term exploration (March 1991, p. 73). Distant search cannot be performed easily as the focal agent needs to choose from alternatives implying that he is knowledgeable about the alternatives, their interplay, and the consequences when deciding for an alternative (Afuah & Tucci 2012, p. 359).

Jeppesen and Lakhani (2010) propose that by publicly disclosing a problem it can be accessed by “marginal” individuals who possess different perspectives and heuristics to solve a problem due to their alternative knowledge. The notion of marginality the authors expound includes 1) technical marginality (being versed in a technical field different from the problem) and 2) social marginality (being socially excluded from the field) (Jeppesen & Lakhani 2010, p. 1017).

The most popular theoretical frameworks that scholars refer to when studying outsourcing are agency theory (e.g. Jensen & Meckling 1976), relational exchange theory, and transaction cost theory (e.g. Williamson 2002). However, these theories exhibit some shortcomings as they are based on the traditional economic perspective (Afuah & Tucci 2012, p. 356). Behavioural and evolutionary theories of organisations (e.g. March & Simon 1958; Nelson & Winter 1982) posit that certain circumstances induce the transformation of distant search into local search thus generating solutions by distant search but at a reduced cost (Afuah & Tucci 2012, p. 356).

The psychological contract theory helps overcome the perspective of traditional long-term relationships. The psychological contract refers to “the contractual parties’ mental beliefs and

expectations about their mutual obligations in a contractual relationship, based on perceived promises of a reciprocal exchange” (Koh et al. 2004, p. 357).

Search activities are incorporated into the early stage of a recently proposed four-phase integrative model of how firms profit from external innovation. This model by West and Bogers (2014) is composed of the three major steps in the process from the inception of the external innovation to its delivery to the customer, in particular 1) Obtaining innovations from external sources, 2) Integrating innovation, and 3) Commercialising innovations. The fourth phase *interaction mechanisms* may occur at any phase of the innovation process and was added to reflect the integrating activities present across all the three phases (West & Bogers 2014, p. 816).

3.3 User innovation.

In the past decades, a changing role of consumers in businesses can be observed. Traditionally, consumers used to be at the end of the value chain and received the product developed through research in return for a payment (Chesbrough 2011, p. 53). However, customers have become evermore active in the value creation process and it was noted that “the term consumer seems hopelessly outdated and weighted with a baggage of passivity and isolation that is increasingly untenable” (Kozinets et al. 2008, p. 351). In literature, the term *user innovation* has manifested itself to describe the affiliation of customers to the innovation process. Users are defined as “firms or individual consumers that expect to benefit from using a design, a product, or a service” whereas producers “expect to benefit from selling a design, a product, or a service” (Baldwin & von Hippel 2011, p. 1400).

Due to higher demands for products and services, customers are invited to share the responsibility for the quality of the offer by participating in the value creation. Customers can join in the co-creation of value which empowers them to influence the business activities such as designing products or promoting production processes. With this, the co-creation experience is integrated in the value itself and managers need to pay attention to the quality of these experiences (Prahalad & Ramaswamy 2004, p. 5). Thus, the future of competition is predicted to lie in a stronger involvement of customers in the value creation process. Prahalad and Ramaswamy (2004) state that co-creation does not necessarily include outsourcing of activities to customers but the basic conception is to learn more about customers and obtain new ideas for many parts of the business system such as design or manufacturing (Prahalad &

Ramaswamy 2004, p. 6). Users have the knowledge about strengths and weaknesses of the products they use every day (Keinz et al. 2012, p. 21). Additionally, they are able to express both needs-based and solution-based information (von Hippel 1978, p. 41). Hence, users occupy a crucial role in the innovation process, in particular in problem solving activities when they do not feel satisfied by the market supply. In this sense, user innovation denotes an innovation process with users contributing the major part of the problem-solving (Piller & Walcher 2006, p. 308).

Co-creation is a powerful means that helps deepen the relationship with customers in the way that competitors cannot interfere in this relationship easily and thus have a barrier to overcome if they want to imitate (Chesbrough 2011, p. 67). Chesbrough (2011) remarks that in case of services it is more difficult to create specifications as compared to products. This is why the customer is perceived in a different way and must be treated differently in both, service and product innovation processes (Chesbrough 2011, p. 54). Development and content creation by a group of users augments the benefits linked to the particular product for all users which might result in a longer product life as well as increased sales of the original product (Jeppesen & Frederiksen 2006, p. 48).

In the past years, a growing body of studies was devoted to question the conventional methods and shed new light on the role of users in the idea generation process. Several major companies have started relying on the great potential of users increasingly including them into the new product development (Poetz & Schreier 2012, p. 4; Jeppesen & Frederiksen 2006, p. 45). For instance, manufacturers such as Adidas, BMW, Procter & Gamble, and 3M have established platforms to integrate users into their product development mechanisms. In this manner, they are able to bring together their customers' input and their internal knowledge of the market (Ogawa & Piller 2006, p. 68, 70). Companies are able to generate profits from innovation because customers are willing to pay for an innovative or improved product or service. Thus, profit generation is interlinked with the value to users and their willingness to pay (Baldwin & von Hippel 2011, p. 1399f.). Remarkably, a variety of products that have been originally developed by users has been addressed in literature, such as innovations in sports equipment, scientific instruments, and electronic subassembly manufacturing equipment (von Hippel 2007, p. 299). Previous studies point out that from 6 percent to almost 40 percent of users are occupied in developing or changing products in major product innovations in several categories (Baldwin & von Hippel 2011, p. 1400).

Jeppesen and Frederiksen (2006) investigate the context of a company using access to an innovative user online community in order to benefit from user innovations that help improve the functionality of the original product. One advantage of such user communities is that they provide immediate feedback on the company's development and deliver ideas for innovations that have a high value for themselves (Jeppesen & Frederiksen 2006, p. 45). The main goal of the company is to gain competitive advantage which may be obtained by distributing value either through sharing or commercialisation (Jeppesen & Frederiksen 2006, p. 46f.). The results reveal that innovation is likely to come from hobbyist users within the community rather than from professionals. The authors argue that hobbyists in the area in which they innovate do not compete with other users and thus, they cannot suffer losses when contributing to the community. The act of sharing is a highly important requirement to achieve success in user communities as it allows other users to enhance the provided innovations without starting anew (Jeppesen & Frederiksen 2006, p. 57).

One practice in user innovation is referred to as collective customer commitment. Customers are asked to commit to purchasing a product which will trigger the call for the company to execute the final development and manufacturing. Thus, companies can reduce production costs for new products (Ogawa & Piller 2006, p. 65). One can think of the example of Threadless, a young fashion company producing t-shirts with colourful graphics. With such type of product, Threadless would be usually concerned with following fast-changing trends and select appropriate distribution channels for its designs. However, the company decided against elaborating on its market research and forecast abilities and instead turns to a community of customers who on the one hand contributes designs and on the other hand evaluates new design submissions every week and pre-orders them. The company manufactures only the designs that have received the most votes and rewards creators of the successful submissions with a bonus and their names printed on the label of the particular shirt (Ogawa & Piller 2006, p. 66). The company benefits from having access to new ideas for further products which is crucial for their business and also reduces risks for product failures which enables them to serve their customer segment efficiently (Ogawa & Piller 2006, p. 66).

One approach within user innovation is termed the lead-user method in which progressive users are identified and involved into the innovation process to search for path-breaking innovations (cf. von Hippel 1986, p. 791). Lead users are early adopters of new products, express their experiences with the product openly, have extensive knowledge on the product, and are able to

give suggestions on improvements (Piller & Walcher 2006, p. 309; Jeppesen & Frederiksen 2006, p. 47). A study focusing on the correlation between innovative and lead user character traits confirmed that innovators have these traits more than individuals who do not contribute to innovations (Jeppesen & Frederiksen 2006, p. 51f.). Besides, there is empirical evidence that lead user innovations tend to gain better performance in the market and have a better commercial potential (Jeppesen & Frederiksen 2006, p. 58).

Some academics and practitioners raised critical voices with regards to the users' ability of providing appropriate and beneficial ideas (Poetz & Schreier 2012, p. 5). Undeniably, in most cases users do not have the experience and expertise which is crucial for the success in the idea generation process. For this reason, many firms still perform this process within the scope of their business operations thus resorting to the internal knowledge and expertise (Poetz & Schreier 2012, p. 7). One explanation given by companies that do not perform customer surveys regularly is that customers' behaviour is often not predictable and they do not know exactly what they want and change their opinion frequently (Ogawa & Piller 2006, p. 67). Another reason is that, often, information transfer from customers to manufacturers is costly and difficult due to the stickiness of the information (Piller & Walcher 2006, p. 307). For a long time the notion prevailed that openness in innovation might reduce the innovator's investments as knowledge spillovers may occur. Therefore, by granting intellectual property rights to the inventors, attempts were made to secure control over the innovations (Baldwin & von Hippel 2011, p. 1400). Certainly, due to the open source software development, which promotes developers to contribute software applications for the user community, knowledge sharing has risen to a higher level. It remains to be seen if the assumption that these new forms of innovation such as by individual users or open collaborative innovation will increasingly cut out manufacturer innovation proves true (Baldwin & von Hippel 2011, p. 1399).

3.4 Crowdsourcing.

3.4.1 Definition of crowdsourcing.

Although crowdsourcing has been on everyone's lips for the past decade, the practise as such is not new and has been performed throughout history. One prominent example is "The Longitude Problem" which occurred in the year 1714. In order to increase the safety of shipping and counteract the dying of thousands of sailors every year, the British government offered a generous prize of £20,000 for a solution that would provide a ship's longitude more easily. As

a result, a working class citizen developed the marine timekeeper H4 which predicted a ship's arrival at its target place with high accuracy (O'Donnell 2002). However, the phenomenon crowdsourcing gained momentum in the Internet era which elevated this concept to new dimensions and made it a topic for discussion. In fact, the term *crowdsourcing* was just recently defined by Howe (2006, p. 5) who proclaimed:

Simply defined, crowdsourcing represents the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call. This can take the form of peer-production (when the job is performed collaboratively), but is also often undertaken by sole individuals. The crucial prerequisite is the use of the open call format and the large network of potential laborers.

In contrast to mere customer interaction, crowdsourcing opens the doors to the unlimited knowledge of the general public that can be integrated into the value creation process. In this sense, crowdsourcing can be viewed as an extension of customer integration as also interested non-customers may be included in the process. It is, hence, an outside-in process (Hammon & Hippner 2012, p. 164).

Crowdsourcing relies on the participation of a large number of solvers who are characterized by a diversity of competences. By its nature, it is an interdisciplinary knowledge transfer as it encourages to exercise existing knowledge in another knowledge domain (Marjanovic et al. 2012, p. 4). The initiatives can be executed by forming crowdsourcing teams which are generally speaking virtual, global, multidisciplinary, unique, and voluntarily (Montelisciani et al. 2014, p. 689f.). Afuah and Tucci (2012) distinguish between "tournament-based crowdsourcing" and "collaboration-based crowdsourcing". Tournament-based crowdsourcing implies that agents from the crowd self-select to individually provide a solution to the given problem which are evaluated afterwards to determine the winning idea (Afuah & Tucci 2012, p. 355). In contrast, the collaboration-based crowdsourcing asks for a solution provided by self-selected individuals of the crowd who work together to deliver a joint solution (Afuah & Tucci 2012, p. 355). However, crowdsourcing entails mostly once-off activities and thus does not require any long-term relationships (Muller et al. 2012, p. 40).

Crowdsourcing is applicable in a variety of industries and can support the solving of elementary problems requiring only little expertise and time (i.e. routine tasks), creative jobs as well as very complex problems (Brabham 2008, p. 79; Kittur 2010, p. 22; Buettner 2015, p. 3).

Typically, the problems are too risky and too costly to be tackled internally (Marjanovic et al. 2012, p. 4). For complex problems, organisations may resort to the principle of modularity. Modularity allows for breaking down the structure as a whole, and subdivides it systematically into modules that comprise several elements representing decisions or tasks. While within modules components are interlinked, the modules themselves can be regarded as independent. Once the modules are worked off, they can be combined to one integral whole. Technological trends such as the increased application of modularity in product and process innovation coupled with dropping design and communication costs (Baldwin & von Hippel 2011, p. 1401f.) intensify the facilitation of crowdsourcing activities within the innovation process. Most commonly, the practise of crowdsourcing is observed for generating ideas for new products, to solve technical problems or to find out about market trends (Saebi & Foss 2015, p. 20). Thus, companies are able to provide a user-oriented value proposition co-created by the community members (Saebi & Foss 2015, p. 20).

Crowdsourcing can be applied for commercial and non-commercial purposes, which can differ in IP agreements, incentives, and the crowd targeted as problem-solvers. The seeker specifies the problem to be solved, the conditions, reward, and also the ownership of the product (Marjanovic et al. 2012, p. 3). Commonly, the rights of the participants' performance are transferred to the initiating organisation for further use (Hammon & Hippner 2012, p. 164). Crowdsourcing activities span from crowd-voting used, e.g. in the talent show American Idol to micro-task crowdsourcing, e.g. Amazon Mechanical Turk and solution crowdsourcing which is often implemented by companies (Prpić et al. 2015, p. 79). Micro-task markets such as Amazon Mechanical Turk, Microtask or CrowdFlower that connect task providers and task solvers are successful (Buettner 2015, p. 1) as they have the potential to execute tasks for a fraction of time and money needed when performed by conventional methods (Kittur 2010, p. 22). Typical crowd-based practices involve innovation contests, in particular idea competitions, in which a problem is delivered to a group of potential problem-solvers who choose to contribute to the solution of the problem. The tasks broadcasted to the participants are largely generic so that the potential problem solvers have a broad platform for their ideas (Leimeister et al. 2009, p. 201). In this sense, crowdsourcing does not imply to provide a concrete solution to the problem posed but to adapt and use existing patterns and solutions for new problems (Marjanovic et al. 2012, p. 4). The contributors are often users or experts with highly distinct knowledge backgrounds and capabilities (Saebi & Foss 2015, p. 19).

It is suggested that the focal agent is likely to apply crowdsourcing to solve a problem when 1) the problem features certain characteristics and can be easily imparted to the crowd, 2) the focal agent does not have the knowledge to solve the problem and therefore draws on distant search, 3) the crowd is large and has potential members who are interested in solving the problem, 4) the best solution can be identified among the ideas contributed and incorporated into the focal agent's system, and 5) the problem can be mandated through information technologies that are low cost and accessible by the crowd (Afuah & Tucci 2012, p. 356). The degree of problem decomposability is another feature that makes crowdsourcing feasible as a highly decomposable problem entails a clearly identified solution criterion (Nickerson & Zenger 2004, p. 619).

3.4.2 Real-world applications of crowdsourcing.

eYeka is an innovation platform that allows brands to post competitions to reach out to the global community of creative individuals thus tapping on collective intelligence. In 2015, it published a report on the current state of crowdsourcing to provide insights into the corporate adoption of crowdsourcing. The findings are based on the analysis of corporate crowdsourcing activity since the mid-2000s to 2014. The two major data sets of interest were the crowdsourcing activity of the 100 Best Global Brands (i.e. the list of the world's most valuable brands, cf. Interbrand 2015) since 2004 as well as the initiatives of ten major companies for fast-moving consumer goods (FMCG) on four leading crowdsourcing platforms in 2013 and 2014. The results show that 85 percent of the 2014 Best Global Brands implemented crowdsourcing at least once in the last ten years and were three times more likely to use crowdsourcing platforms than websites and social media for their activities (eYeka 2015, p. 6). FMCG and technology brands were found to have demonstrated the most crowdsourcing efforts with Coca-Cola heading the ranking after having used crowdsourcing 34 times over the past decade (eYeka 2015, p. 7f.). Further, the report accounts the way crowdsourcing activities are applied and finds that video contests (45 percent) are the most widely employed type, followed by idea contests (23 percent). Other types include design, music, and application contests, casting of personal, and others. Apparently, leading FMCG companies put more emphasis on content crowdsourcing (73 percent) than ideas (27 percent) in 2014 (eYeka 2015, p. 11). On the downside, this report does not reveal what the purposes of crowdsourcing efforts of the companies are and if business model innovation is one of the goals to achieve through crowdsourcing.

On the one hand, crowdsourcing can be used for particular business activities or to generate input from the crowd in order to accelerate the problem solving. In March 2008, Starbucks launched its crowdsourcing online platform My Starbucks Idea where customer can share their ideas, vote, and comment on other customers' submitted suggestions. The contributions are classified as product, experience, and involvement ideas. Starbucks Idea Partners are assigned to engage in a dialogue with the contributors. The continuous use of the platform holds evidence for the persistent online community's activity willing to voice its ideas on how to improve Starbucks' value propositions. In fact, for the brand it is also a tool for market research, community engagement, and reinforcing brand trust. As of February 2015, over 190,000 ideas were submitted, approximately 300 of which have been eventually implemented by the company (SMBP 2015).

Another well-known example of crowdsourcing is the case of Goldcorp Inc. In 2000, the Canadian gold mining group launched a crowdsourcing initiative publishing data on the Internet and asking the public to analyse the data to detect places with gold. The process was divided in two stages which benefitted both the solver and the seeker. The winners were rewarded with solid cash prizes ranging from US\$10,000 to US\$95,000. In the contest, 110 locations were suggested, half of which was prior unknown to the company, which generated 8 million ounces of gold, worth more than US\$3 billion (Marjanovic et al. 2012, p. 10).

Stieger et al. (2012) investigated the internal crowdsourcing project DialogTage which targeted to engage the company's employees in a discussion about the status quo in the company, ideas for future offers, and improvements of processes (Stieger et al. 2012, p. 54). At the end of the project, 135 threads including 1,374 comments were created. Out of 370 employees 216 were registered on the online platform and approximately 50 percent of the registered members actively contributed to the dialogue. As the main measure for the outcome, the company employed an impact factor which was based on the citations of posts. Contributors were rewarded with points which reflected the resonance of an individual's contribution (Stieger et al. 2012, p. 52, 55).

In 2015, crowdsourcing contests were conducted, inter alia, by global brands such as Microsoft, McDonald's, HP, Intel, Amazon, Coca-Cola, Samsung, Cisco, Shell, Nokia, and Ford (Roth 2015).

On the other hand, crowdsourcing can serve as a foundation for a business model, i.e. to manage the crowds and their contributions is one of the central elements of the business model. Made.com, a UK-based furniture retailer, is an example of a crowd-based company. Visitors of the website can submit their furniture designs such as beds or tables that members of the community can vote for. The winning designs are then made available for order (IdeaConnection 2015).

Crowdsourcing is applicable in various other realms and has also found success in the world of medicine. For instance, Sermo is an online platform for medical crowdsourcing and knowledge sharing which, founded in 2005, has grown to over 468,000 registered physicians who are verified and credentialed. Doctors are able to anonymously post challenging patient cases to solve them together with colleagues across different nations. Usually, posts including photos, lab and imaging results receive answers within minutes thus allowing an enhanced decision-making on the further treatment of the patient (Sermo 2015).

Crowdsourcing can also be of great value in corporate R&D for scientific problems. The innovation platform InnoCentive funded by the pharmaceutical company Eli Lilly and launched in 2001 (Howe 2006, p. 22) allows companies to broadcast their challenges to the InnoCentive community most of which are within the realm of Life Sciences and Applied Sciences. The crowd of solvers can submit their solution on the website which is then reviewed by the seeking organisation. Awards for the solution that meets the requirements are quite large; not uncommonly, companies pay between US\$10,000 to US\$100,000 per challenge (Howe 2006, p. 23).

All the above mentioned activities aim towards the goal to achieve crowd capital. The size of the crowd is not the sole aspect to consider but also the features of the crowd are important (“the who”) which will be discussed below. The initiating company also needs to focus on how to obtain the required resources from the crowd and how to integrate the contributions into the internal structure (Prpić et al. 2015, p. 80). Crowdsourcing is challenging as the large amount of information gathered has to be evaluated which necessitates adequate organisational capacities. Also, the company needs to communicate the contest appropriately to ensure the understanding of the problem and the acceptance of the undertaking by the employees (Saebi & Foss 2015, p. 20).

In management literature, crowdsourcing is primarily discussed in the context of open innovation and idea competitions (Stieger et al. 2012, p. 44). The research on crowdsourcing brings forth many questions that have been debated in several papers. One of such questions concerns under which circumstances crowdsourcing can be considered a good instrument to solve a problem. Or even a better one compared to solving the problem internally or leaving it to a designated agent (Afuah & Tucci 2012, p. 356). What type of organisation is likely to use crowdsourcing successfully and what are the internal and external conditions that facilitate crowdsourcing (Afuah & Tucci 2012, p. 356)? In literature, crowdsourcing challenges are debated in terms of task design, motivation of the participants, incentives systems, and quality control of the outcome, inter alia (Buettner 2015, p. 1). Leimeister et al. (2009) gather the most common characteristics of ideas competitions and name criteria such as task specificity, degree of idea elaboration, organisational appearance, time line, incentives, and target group (Leimeister et al. 2009, p. 202). Marjanovic et al. 2012 address further core features of crowdsourcing, in particular roles of seekers and solvers, risks and risk management, the IP management approach, limitations, and costs (Marjanovic et al. 2012, p. 7). Due to little research, there is a lack of information regarding the benefits and constraints of crowdsourcing, however, the projects should be “feasible, sustainable, productive, and cost-efficient” (Marjanovic et al. 2012, p. 5). The following sections address issues such as chances and risks, characteristics of the crowd that is engaged in crowdsourcing, rewards and incentive structure, and finally several condition in crowdsourcing that should be taken into account.

3.4.3 Chances and risks of crowdsourcing.

As a business activity relying on input from outside of the firm’s boundaries, crowdsourcing entails chances and risks. Before a company decides to commence any crowdsourcing initiatives, it needs to gather information about the potential opportunities and risks.

Regarding the advantages of crowdsourcing, Afuah (2014) mentions access to a talent pool with knowledge and a higher probability of gaining a solution of high value at a low cost because only the winning solutions are rewarded with a prize. These days not only the number of well-educated people is higher than in the past making more potential solvers available, but also the prices for many products are cheaper relative to the income, thus lowering the costs of equipment for solving problems (Afuah 2014, p. 73). Moreover, the author states that some problems can only be solved by a crowd, in fact the solution may already exist in the crowd. The transaction is facilitated as the firm only designs the problems and pays for it.

Crowdsourcing might further serve as a good recruiting tool since contributors demonstrate their problem-solving skills and thus their potential as eligible job candidates. Besides, the author argues that the seeking organisation can notify its competitors about its activities with crowdsourcing serving as a marketing tool to provide information about its products (Afuah 2014, p. 67f.)

Considering the disadvantages of crowdsourcing, Afuah refers to the risk that no one from the crowd might self-select to solve the problem or such individuals self-select who do not have good ideas (Afuah 2014, p. 68). It may happen that in some user communities only few individuals contribute innovative ideas whereas in others the work is distributed equally among the users (Kozinets et al. 2008, p. 344). Despite idea and design competitions being popular, the fact that they are present in a high number may result in a lack of active participants. However, only if interested and talented people actively share their ideas innovation can augment on the platforms. One reason might be that firms fail to provide enough incentives to engage people in co-creation projects (Füller et al. 2011, p. 260). However, there is no guaranteed diversity of opinions within the crowd (Brabham 2008, p. 85).

Generally, crowdsourcing may be not suitable for problems requiring tacit knowledge and difficult for complex and long tasks (Afuah 2014, p. 68). Crowdsourcing requires a particular organisational design in terms of goals, strategy, and structure (Keinz et al. 2012, p. 23). For instance, during the search process, team members within the company are expected to be open-minded towards the input of external actors. Also, there might be an inner resistance within the organisation as the external users are not professionals and they are not perceived as being appropriately competent. Especially employees from the R&D and marketing department might view their own responsibilities being in danger (Keinz et al. 2012, p. 25). The phenomenon that employees do not accept the fact that individuals outside of the company are able to generate important ideas or provide relevant knowledge has become known as the “not-invented-here” syndrome (Katz & Allen 1982, p. 7). In addition, the company needs to be able to use the external knowledge to create value internally implicating that the necessary absorptive capacity has to be created to make use of the solution (Afuah 2014, p. 68f.). Li and Hongjuan (2011) also mention lack of financial means or miscalculation in project planning, cultural problems, and general managerial constraints as reasons for failure of crowd-based initiatives (Li & Hongjuan 2011, p. 3).

Moreover, the reactions of competitors should be considered when addressing open crowds with a particular task. Opportunistic competitors might participate in the crowdsourced activity and contribute unfeasible solutions. On the whole, risks of any opportunistic behaviour might reduce the value of crowdsourcing activities. After all, it might become more difficult to protect the company's intellectual property as compared to an internal R&D process (Afuah 2014, p. 69). In this sense, companies face risks when running challenges on crowdsourcing platforms since they might reveal future steps and their competitive superiority. To mitigate the risk, companies and also governmental organisations turn to brokers who manage the crowdsourcing initiatives largely by relying on online communication platforms. Examples of such broker organisations are InnoCentive, NineSigma, and Your Encore (Marjanovic et al. 2012, p. 7). The brokers' role is to identify potential problem solvers, manage network relationships, and assist in solution evaluation for what they charge commission fees (Marjanovic et al. 2012, p. 12). Such online innovation intermediaries address everyone who conveys interest through an open call (Montelisciani et al. 2014, p. 689). Nevertheless, also the involvement of brokers is not free of risks for all parties. The risk for the firm remains since it shares its knowledge and might lose its competitive advantage as well as makes an upfront investment of time and effort without having the certainty with regards to the outcome. Brokers depend on their community of solvers who contribute successful solutions. This relationship is based on a legal framework but also on trust (Marjanovic et al. 2012, p. 12). Thus, brokers can only rely on the motivation of the community to participate in the crowdsourcing projects.

Researchers found that drawbacks of crowdsourcing does not only affect the initiating organisation but may also have negative effect on the crowd. Undeniably, the intellectual work performed by the crowd has a higher value than covered by the prize for the winning ideas. For instance, Threadless awards its designers with much less than they would earn if they were regularly commissioned for this work (Brabham 2008, p. 83). Brabham (2008) even speaks of a "slave economy" when comparing the cut the crowd is paid in crowdsourcing with the value the work is worth in the market (Brabham 2008, p. 83). It seems that companies exploit the crowd to nurture their self-interest (Brabham 2008, p. 83). Postigo (2003) also argues that "this process manages to harness a skilled labour force for little or no initial cost and represents an emerging form of labour exploitation on the Internet" (Postigo 2003, p. 597). Also, solvers face risks as they invest time and resources but without the certainty to receive the reward (Marjanovic et al. 2012, p. 7). So inspecting crowdsourcing on the micro-level, it opens a perspective on how it can ruin individual's careers. However, on the macro-level,

crowdsourcing allows to integrate users in the design process thus representing an opportunity to make one's mark in creativity and act as an entrepreneur (Brabham 2008, p. 84).

As a last point, the following figure is based on the summary by Hammon and Hippner (2012) who compiled some major chances and risks of crowdsourcing.

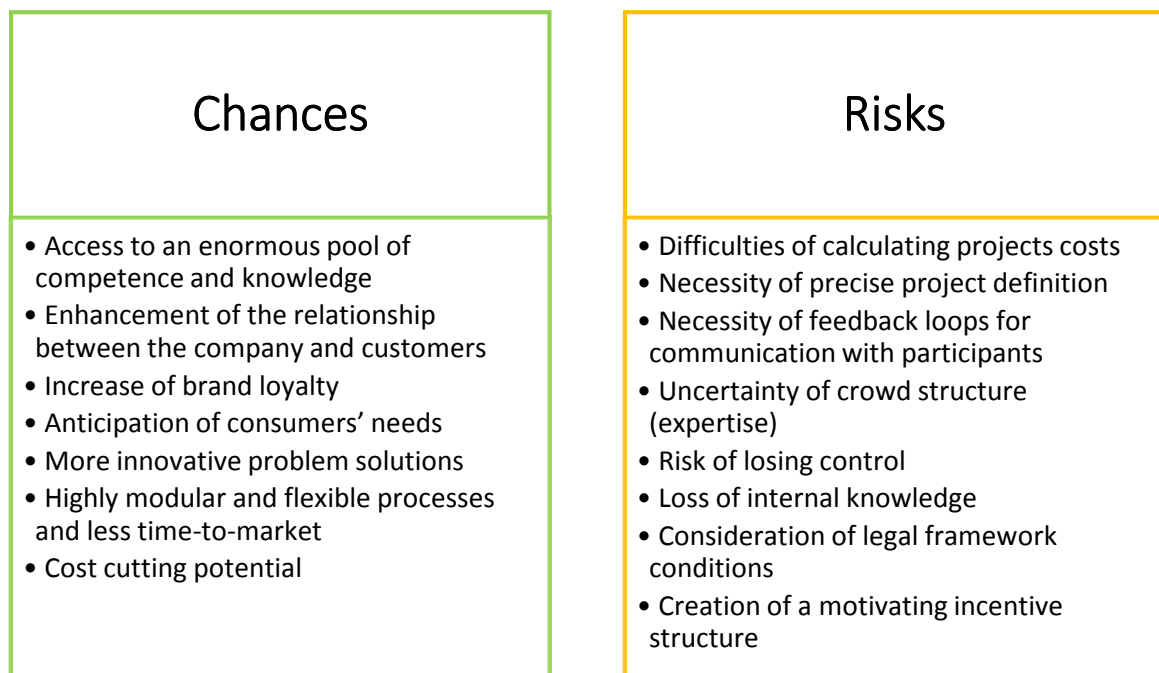


Figure 4. Selected chances and risks of crowdsourcing (Reference: Hammon & Hippner 2012, p. 165)

3.4.4 Aspects of motivation and reward.

In order to determine the reward system of the crowdsourcing project, it is needful to understand the motivational drivers of the crowd to engage in such a project. In psychology, most concepts on motivation distinguish between intrinsic and extrinsic motivation. Intrinsic motivation explains behaviour that an individual shows without any external incentives, for instance, for reason of fun or the willingness to help (Hammon & Hippner 2012, p. 164). Extrinsic motivation occurs when external incentives, e.g. financial compensation or recognition by other individuals drive the behaviour (Leimeister et al. 2009, p. 203; Hammon & Hippner 2012, p. 164). Although organisers of idea competitions cannot stimulate intrinsic motivation, they can arrange an appropriate set of incentives that meet the participant's motivation to contribute to the contest (Leimeister et al. 2009, p. 203). Self-marketing motive is considered an attribute of idea competition (Leimeister et al. 2009, p. 205). In their study, Leimeister et al. (2009) showed that incentives with the underlying motive of learning, direct compensation, self-marketing, and

social motives stimulated participation in the SAP idea competition (Leimeister et al. 2009, p. 218). Other detected motives encompass altruism, affiliation to a particular group, and demonstration of skills since each agent has some area of expertise (Afuah & Tucci 2012, p. 358; Buettner 2015, p. 5).

Lerner and Tirole (2002) study reputation as a driver of voluntary efforts in a community context explaining the motivation of open source programmers. They find that open source software programmers may be spurred by “peer recognition” which helps them improve their position in the job market. Besides, they intend to radiate competence which encourages them to demonstrate efforts in the community setting. Other studies dealing with motivation in the context of open source software programming elaborated other factors impacting the innovation endeavour. Lead users have proved to yield valuable achievements in the new product development process. Thus, the notion manifested in literature that innovators are likely to exhibit attributes similar to lead users and thus can be differentiated from other users involved. Lead users are characterised as expecting innovation-related benefits from an outcome which stimulates them to motivate. As the other crucial feature they want to experience the innovative solution earlier than the majority of the target audience. It can be stated that they need to satisfy their own needs that have not been addressed yet (Lerner & Tirole 2002, p. 58).

In addition, it was found that the users’ motivation stems from the company’s recognition of the innovative performance, which is accompanied by the wish to see their contributions embedded into the company’s original product. One effective means for the firm aiming at utilising the motivation and showing recognition is to openly acknowledge the users’ efforts. The study supports the hypothesis that users engaged in innovation are likely to have lead user features. Further, it was found that innovative users tend to produce incremental-type innovations implying that users rather pay attention to details the firm left uncared (Jeppesen & Frederiksen 2006, pp. 53-58).

Usually, participants expect a reward for their efforts in crowdsourcing projects. But what is an appropriate reward and how can it be determined? It is obvious that in the first step the organisation will decide about it based on its available budget. However, larger innovation projects require a thoroughly elaborated approach since the publicised reward represents a signal of how much value the company expects to gain from the project (Afuah 2014, p. 66).

Von Hippel and von Krogh (2006) propose three models to reward innovation efforts: 1) the private investment model, 2) the collective action model, and 3) the intermediate “private-collective” model (von Hippel & von Krogh 2006, p. 304). The private investment model of innovation incentives is based on private investment to spur innovation. Here, unintended spillovers of innovation-related information might negatively affect the innovator’s earnings (von Hippel & von Krogh 2006, p. 297). The collective action model for innovation incentives implicates the relinquishment of knowledge control for the innovator such that the created innovations become a public good. One major problem of the collective action models relates to the reward of real contributors and how to overcome free riding (von Hippel & von Krogh 2006, p. 302). The private-collective model steers a middle course between the two models assuming that making innovations a public good will increase the innovator’s private profit (von Hippel & von Krogh 2006, p. 303). Stieger et al. (2012) suggest to hurdle free riding by assigning rewards by the individual contribution to the solution (Stieger et al. 2012, p. 52).

There are also examples of crowdsourcing which do not involve a financial reward for the participation such as Wikipedia.org. Here, users are provided free access to a large pool of continuously expanding user-generated Internet encyclopaedia. The website is only backed through donations (Hammon & Hippner 2012, p. 163). Intrinsically, in user communities related to a company or a product it can be expected that users engage in voluntary and uncompensated activities. In empirical research the effect of “hidden cost of rewards” could be observed (Jeppesen & Frederiksen 2006, p. 50). This effect becomes evident when controlling extrinsic rewards have a scant influence on “engagement” (current activities) and lower the individual’s motivation on “re-engagement” (persistence) (Bénabou & Tirole 2003, p. 490). It is assumed that voluntary efforts might be undermined by extrinsic rewards (Deci 1975, p. 139).

3.4.5 Features of the crowd.

As aforementioned, the crowd can be attributed a collective intelligence which enables it to collectively solve problems by means of the Internet that could not be previously solved by individuals or organisations (Leimeister 2010, p. 240). One important requirement for crowdsourcing is the involvement of a large number of people. Surowiecki argues that “large groups of people are smarter than an elite few, no matter how brilliant – better at solving problems, fostering innovation, coming to wise decisions, even predicting the future” (Surowiecki 2005, p. 1). One advantage of crowds is that they are able to gather more data thus contributing to a more detailed apprehension of the environment (Stieger et al. 2012, p. 46).

The new internet-based technologies facilitate the connectivity among individuals and promote collaboration. This progress established an environment where participants of the focal crowd do not depend on time and place for their collaboration (Bafoutsou & Mentzas 2002, p. 281). In general, crowd can be understood internally or it can be the world. The more diverse the crowd is and different skills are represented, the more likely it is that one agent will be found who will self-select to solve the problem (Afuah & Tucci 2012, p. 365f.)

To be precise, one can distinguish between three different types of crowds:

1. **Task-based crowd:** This type of crowd completes a determined task and there are hardly or no interactions between the crowd participants. All participants rely on their individual capabilities. It was found that this type of crowd can be motivated by financial rewards, skills improvement, fun as well as community-related drivers (Smith et al. 2013, p. 25).
2. **Information-exchange public crowd:** Within this crowd, individuals who provide and those who seek technical information can be found. In addition, some tasks may involve creativity to solve them. Motivational factors here are learning, fun, the community feeling, and access to technical experts (Smith et al. 2013, p. 28).
3. **Employee-based crowd:** In this type of crowd all participants are employees of the crowdsourcing initiating company. As rewards of interest career development and peer recognition were identified (Smith et al. 2013, p. 28).

The advancement of new Internet technologies and especially the rise of social networks and companies offering collaboration software enable companies to have a better access to their employees such that they can utilise the crowd on a larger scale and consult it even in the strategy development process (Stieger et al. 2012, p. 45). The underlying notion is that employees play a crucial role in the strategy implementation such that their involvement in large numbers is prerequisite to enhance understanding, commitment, and effective implementation of the strategic measures (Sterling 2003, p. 30).

Stieger et al. (2012) gleaned three essential criteria to be applied to the crowd in order to be regarded capable of making smart contributions:

1. Diversity as different people have different points of view and knowledge.
2. The correct summarisation of information plays a major role as only the overall statement brought together from the individual estimates is of the highest significance.

3. Independence as the last prerequisite implies that the members of the crowd express their own ideas without being influenced by their surroundings (Stieger et al. 2012, p. 46f.)

3.4.6 Design principles for crowdsourcing.

In the following, design principles for crowdsourcing activities are elucidated. The whole crowdsourcing process can be broken down in several main stages which facilitates the management of the process and provides an overview of the tasks to be performed and resources needed. In detail, the following four phases play a major role in crowdsourcing:

1. Problem delineation and prize setting for broadcast to crowd:

Once the problem is identified and the decision is made to crowdsource it, the problem must be communicated in an understandable language, i.e. to be transformed. It is important that the crowd can understand the problem. However, not too much information should be given away unwillingly (Afuah 2014, p. 66). Clear descriptions of the problem and the requirement for the solution are essential for the recruitment of potential problem solvers (Keinz et al. 2012, p. 28). Also, the prize needs to be determined with the scope of prize reflecting the perceived value of the solution; it should be not too high and not too low (Afuah 2014, p. 66). Considering the users' fairness perceptions in the design of innovation contest, the prize should compensate the efforts of the users to participate in the contest (Keinz et al. 2012, p. 28). Managers need to know what kind of contributions are required from the crowd and how this outcome will help solve the problem (Prpić et al. 2015, p. 78).

2. Self-selection of potential solvers to contribute to problem solving:

Some members of the crowd self-select to deliver a solution. The prize has an influence here but also the associated non-monetary factors (e.g. fun, opportunity to demonstrate their skills to future employers). The seeker cannot control this aspect directly (Afuah 2014, p. 66). It is useful to provide a selection of several types of rewards and vary them. Therefore, the relevant rewards according to the context should be identified. Geographical and cultural diversity need to be taken into account too (Smith et al. 2013, p. 28f.).

3. Solution evaluation:

Other people need to be involved for the evaluation as the solution might be very complex (Afuah 2014, p. 67).

4. Reception and implementation of the solution:

The solutions need to be transferred to the seeker, however, the risk of the not-invented-here syndrome is attached. If the solution from outside is alien to the seeker's scope of activities, there is the perceived risk that the seeker does not have the required knowledge to absorb and incorporate it into internal value (Afuah 2014, p. 67). Corporate strategy should be adapted to be capable of handling radical innovation as well (Keinz et al. 2012, p. 29).

Besides, employees might perceive crowdsourcing as a threat to their position as crowdsourcing has the potential to generate better solutions faster and at a lower cost (Afuah 2014, p. 67). As a consequence, employees need to be convinced about the benefits of user innovation strategies which can be accomplished by creating appropriate incentive systems for both the company's middle management and employees (Keinz et al. 2012, p. 27). Selected individuals may be appointed to manage the community of users and lead-users (Keinz et al. 2012, p. 30). R&D employees are rather responsible to formulate problems and to collect ideas than to generate them and solve problems (Keinz et al. 2012, p. 32). In order to bring the project forward and to coordinate the actions, it is needful to establish clear authority structures which is even more important when conventional organisational sanctions are lacking (Ågerfalk & Fitzgerald 2008, p. 390).

Crowd capital is the result of an appropriate internal utilisation of the contributions. Therefore, it is not guaranteed that the mere engagement of the crowd and the collection of potential solutions will lead to success (Prpić et al. 2015, p. 83). On the contrary, in the short term, user innovation strategies require a large investment but yield only low return on investment (Keinz et al. 2012, p. 30). Management of the incoming knowledge and information is a substantial part of the process. For instance, individual employees or teams can be tasked with interacting and administrating the community thus directing the crowd's performance towards the desired yield (Prpić et al. 2015, p. 83).

Traditionally, executives have dealt with groups of employees who form part of the organisation and can thus be easily controlled. In contrast, crowd engagement needs to be aligned with corporate objectives (Prpić et al. 2015, p. 81). Further, companies need to develop competencies to be able to identify lead-users (Keinz et al. 2012, p. 27) to target them specifically. Also, beforehand questions might be asked such as whether members of the crowd need to interact with each other to find the solution (Prpić et al. 2015, p. 82).

Stieger et al. (2012) dedicated their study to the analysis of the use of crowdsourcing, in particular the employees of an Austrian automation supplier in the strategy development process. Their research was motivated by the fact that crowdsourcing approaches are rarely applied in enterprises and therefore they aimed at investigating crucial characteristics of a dialogue platform and their embedding in the working schedule. They found that for a successful implementation of crowdsourcing it is important to communicate and explain the objectives of the project in detail, in a direct and personal manner which helps increase participation. Furthermore, strategically relevant information needs to be distributed among the employees to empower them for the participation in the project. In addition, one important factor was the asynchronous communication approach which provided enough time for the participants to organize and articulate their thoughts to the topic he or she could relate to (Stieger et al. 2012, pp. 55-60).

Füller et al. (2011) analysed participants' experience in the online idea and design competition run by Swarovski. In particular, they focused on the influence of an autonomous, enjoyable, and competent experience on the quantity and quality of the ideas as well as the interest in participating in future competitions (Füller et al. 2011, p. 260). In a typical competition interested individuals were invited to participate, to share their ideas, and to engage in discussion with other participants. Then, users voted on the ideas and commented on other contributions. Such a platform offered the opportunity to connect with like-minded individuals, to extend the social relations and to be part of a community (Füller et al. 2011, p. 261). The results showed that positive co-creation experiences indeed increased the intensity, quantity, and quality of contributions as those ideas had received a better evaluation (Füller et al. 2011, p. 267). Further, it was revealed that previous or current experience with the co-creation project had a significant impact on the engagement on forthcoming competitions. This fact is especially interesting for companies wishing to engage users on a regular basis (Füller et al. 2011, p. 268). Consequently, companies should strive to create such an environment and especially refrain from heavy control mechanisms (Füller et al. 2011, p. 270).

Another recent study compared the outcomes between an online idea competition and focus groups which were designed to create new mobile phone products and services for senior citizens in Austria (Schweitzer et al. 2012, p. 33). The online idea competition outperformed the result from the focus group workshop in terms of the number of total ideas, the number of unconventional ideas, and ideas realisable within the next 24 months. Further, the cost per idea in the online competition was found to be much below the focus group ideas. However, it was also found that focus groups discussions are better suited for deepen the understanding of customer needs which is relevant for high-quality ideas (Schweitzer et al. 2012, p. 36f.). The quality and quantity of the outcome generated by an idea competition is largely dependent on the design of the competition and its ability to attract knowledgeable and creative problem solvers. Thus, it is an essential prerequisite to grasp the interests of the crowd and to provide motivational drivers (Schweitzer et al. 2012, p. 34).

3.5 Crowdsourcing and business models.

Finally, this last part of the chapter on crowdsourcing is concerned with crowdsourcing and business models as it is suggested in the title of this thesis. Having provided familiarity of the concepts of business models and crowdsourcing, it is easier now to combine both parts into a whole and investigate the relationship between them. While in the following, insights into the current state of research are given, the subsequent section will outline the independently, recently gathered empirical evidence on the use of crowdsourcing for business model innovation.

To grasp the environmental changes, firms should not only rely on internal resources but also draw on their customers as a source of information. Once this knowledge is gathered, the business model needs to be adjusted by integrating the previously identified market opportunities and challenges. In the last step, the modified business model and accompanying organisational modes can be implemented based on the environmental setting (Wirtz et al. 2010, p. 287).

Waldner and Poetz explored the value of crowdsourcing for business model innovation in an empirical study in which the business model of the most popular Swedish podcast was in the centre of attention. Users were asked to submit ideas in order to improve the existing business model of the podcast. The ideas were then evaluated by independent experts who held the relevant knowledge of the industry (Waldner & Poetz 2015, p. 11).

Individuals self-selecting to participate in the contest could choose between submitting a new idea for each of the building blocks, stating their dissatisfaction with the current arrangement of the building block but without having an own idea, or confirming their liking of the current building block design (Waldner & Poetz 2015, p. 14). The measures included the degree of change of business model innovation as well as novelty and value of ideas for the listeners and the hosts of the podcast (Waldner & Poetz 2015, p. 17). The results on the outcome quantity showed that perceived fairness of the crowdsourcing initiative had a significant influence on the likelihood to submit an own idea and the degree of change in business model innovation. While the participants' lead usersness and personal creativity had a positive effect on the degree of change, the fact of being a fan of the podcast decreased the probability of participating in the initiative at all and also contributing more than one component idea. Further, previous experience with business model innovation decreased the likelihood of contributing an idea. Of the 418 submissions, the experts suggested to fully implement 25 ideas and further 53 ideas that involved individual components. The whole sample showed that the degree of change strongly correlated with the novelty and value of the ideas. Assessing the outcome quality, one may say that being a fan had a negative effect on the novelty of ideas, business education and business experience decreased the value of business model ideas (Waldner & Poetz 2015, pp. 21-30).

While the focus of this thesis is to investigate how crowdsourcing can be useful to induce a business model innovation, it will be briefly depicted how the existing business model can also affect open innovation engagement. Recent studies have shown that companies characterised by organisational flexibility and an openness towards a new configuration of the existing business models are more successful when harnessing open innovation strategies (cf., e.g. Hienerth et al. 2011; Keinz et al. 2012). Therefore, firms striving to engage in open innovation activities need to design their business models accordingly to embrace the open innovation strategies. There is little research on the connection between business models and open innovation strategies, in particular explaining how the business model should be organised (Saebi & Foss 2015, p. 3). Interestingly, Saebi and Foss (2015) investigate the vital pre-conditions regarding the business model for successful open innovation. Open innovation include inbound and outbound elements of innovation processes implying that companies first engage in activities to generate knowledge outside of the firm's boundaries and then implement this knowledge internally. To facilitate this process, companies need to be permeable to a certain extent so that knowledge flow can pass through the boundary (Saebi & Foss 2015, p. 9). Innovation strategies through crowdsourcing can be categorized as having a high breadth due

to the large number of contributors involved, and low depth due to the rather transactional relationship between the focal firm and the crowd (Saebi & Foss 2015, p. 15).

To sum up, companies benefit from the networked world as they can gain access to the untapped knowledge of the crowd. Due to the spread of the Internet, hobbyists can market their skills and price them more competitively than professionals, while being located anywhere in the world. (Howe 2006, p. 2). Crowdsourcing is a “distributed problem solving pattern” (Li & Hongjuan 2011, p. 1) which is employed by organisations to look beyond its boundaries and thus, not to be constrained by their own beliefs and experiences (Muller et al. 2012, p. 41). The next chapter is dedicated to the empirical part of the present thesis.

4 Methodology of the empirical study.

As previously discussed, business model innovation is widely acknowledged to help sustain a company’s competitive advantage and to generate profits. There are many possible ways of inducing business model innovation through idea generation. Based on the determined setting such as problem or organisational capabilities, the focal company can choose either to rely entirely on internal resources, or to outsource the problem to either a designated agent or to a mass of individuals. In the literature it has been manifested that users are able to contribute valuable ideas since they are close to the product and in the end they are the recipients of the company’s outcome. But not only those individuals who indeed make use of a particular product or service can be expected to contribute to the idea generation process as it is described by the lead user method (cf. Von Hippel 1986), but also those individuals who are not related to the product or service at all. In this sense, the focal company faces the problem of whom to mandate its business model related task.

Crowdsourcing has proved useful in the context of product innovation and also business model innovation, in particular with regard to the idea generation process, which is an essential part of the firm’s innovation process. In the present thesis, this paradigm comes into effect under the premise that the self-selected agents are able to provide ideas for at least one component of a business model. So far, little research has focused on the role of crowdsourcing for business model innovation (Waldner & Poetz 2015, p. 8). Further, considering the current state of research, no study was dedicated to investigate business model innovation in an e-business

model by means of crowdsourcing. Based on the elaborated understanding and expounded theoretical frameworks of crowdsourcing and business model innovation, an empirical project was conducted in collaboration with the Austrian start-up Business Model Gallery and the crowdsourcing platform Neurovation. The objective of the research is to tap on collective intelligence and generate ideas that could be used for a business model innovation of the start-up. Therewith, the research question is:

Can crowdsourcing be useful for a business model innovation in an online start-up?

4.1 Introduction of the Business Model Gallery.

To begin with, in order to conduct the study, the key prerequisite was to identify a company, which met the following conditions:

1. The firm had a need to improve and innovate its current business model.
2. The company was willing to reveal its business model and to launch an idea generation contest as well as to call on its existing customer base but also non-customers to participate.
3. The firm had to commit to evaluate the submitted ideas.

Following these requirements, Business Model Gallery (www.businessmodelgallery.com) was chosen as a collaboration partner. The Internet-based start-up Business Model Gallery (in the following called BMG) was founded in Austria in 2013 and is an online database of traditional and innovative well researched business models, covering all types of companies, and industries with a global perspective. Registered users receive access to information about business models, which are depicted by means of the business model canvas, thus making the details of the main building blocks available. Moreover, users can learn about the important features, which make the presented business model special, as well as some action-oriented insights to take away from the business models. The start-up targets several customer segments, such as consultants seeking inspiration for own projects, businesses of all sizes looking for content and inspiration to innovate their own business model, universities and educational organisations who offer teaching on business models, or simply individuals interested in business models and innovation. BMG operates a subscription-based model implying that it creates proprietary content for which it charges a flat fee (Lumpkin & Dess 2004, p. 168). Thus, customers can choose to purchase individual business models or subscribe for monthly or yearly packages while they receive access to the first three business models for free. When paid monthly, the

basic package costs €9,-, the advanced €19,-, and the pro €29,-. The yearly fees are €90,-, €190,-, and €290,-, respectively. The packages vary in their features, ranging from only searching new business models in the basic version, to also comparing, filtering, and exporting them in the pro version. The top package further provides access to the business models design themes, which are a collection of patterns and strategies used to delineate business model building blocks. These design themes can serve as a source of inspiration for customers who pursue to design their own business model. BMG strives to be the world's largest business model database and seeks new inputs to innovate its business model so that it can expand its services and attract new customers. The team consists of the two co-founders and one business model analyst. The BMG had 2131 subscribers in the beginning of July 2014 and 3737 in March 2015 just before the contest started. The number has grown to 4545 subscribers after the idea contest at the beginning of July 2015. For a better understanding of the problem, the business model of the focal firm is visualised below via the "business model canvas" by Osterwalder and Pigneur (2010).

Key partners Simpleasy: IT company Zeppelin University: academic research Manchester Business School: academic research CEDIM: design and innovation school, executive education	Key activities Web design Research, writing, and editing Social media marketing Key resources Academic research on business models and business model innovation; Practical experience in advisory, consulting and education, working with Fortune 500s, SMEs, and start-ups around the world on designing and implementing innovative business models; Team	Value propositions The world’s largest business model database Easy, fast and convenient online access to well researched business model case studies Business models can be found and compared based on a large number of design themes Provides inspiration for companies that want to renew their business model Support for research	Customer relationships Transactional Long term Channels Website www.businessmodelgallery.com	Customer segments Individuals interested in business models and business model innovations Consultants looking for inspiration and content for engagements and workshops Businesses looking for information and inspiration for designing, changing or even reinventing their own business model Universities and business model education and training providers
Cost structure IT infrastructure Marketing Staff			Revenue streams Sales of single business models for 0.99 Euro Monthly subscription packages ranging from 9€ to 29€ per month Yearly subscription packages including 2 months for free Special corporate and education packages	

Figure 5. Business model canvas of the BMG

4.2 Data collection.

The empirical part of the present thesis adapts a quantitative exploratory design in order to research the value of including users in the idea generation process for a business model innovation. As part of the study, an idea contest was launched on the idea platform Neurovation, which was open from March 16th to June 30th 2015. Interested individuals could register on the platform and submit an idea for a business model innovation for BMG during this period. Also, already registered members of the platform could self-select to participate in the contest. For a pre-test, the contest was initially launched in German, however, an English version was added as well to address international users of BMG and others who do not speak German. Participants were invited to submit an idea for at least one building block of the business model canvas, an instrument, which proved useful, as it is detailed enough to present an acceptable business model idea while at the same time simple enough to be conceived by individuals without specific knowledge (Waldner & Poetz 2015, p. 14). To ensure that each participant had an understanding of what the business model canvas is about, a link was provided within the contest description explaining the business model canvas in detail. Participants were further endowed with knowledge about the current business model of the BMG as pictured above. On this basis, they were encouraged to select one building block to change and explicitly state how it could be changed. In particular, the following questions were posed:

- 1. Which component(s) of the company's business model can be changed?**
- 2. How can it/they be changed?**

In the next step, participants were further asked to fill out an additional questionnaire including questions on their knowledge of the business model concept (Have you used the business model canvas before?), previous use of BMG's free trial service (Have you used the (free trial) service of the Business Model Gallery before?), the availability of a subscription for the BMG (Do you have a subscription of the Business Model Gallery?), and their subjective perception of the task (How do you assess the task of the idea contest?) (1 = very easy... 5 = very difficult). The incentive for participation consisted of the prospect to win a €50 Amazon gift card and subscription for the BMG, which would reward the three best ideas submitted. The link to the contest was advertised in the newsletter of the BMG, in several groups on social media platforms (Facebook and LinkedIn), and on the forum of the *Business model innovation hub*, the platform "where visionaries, game changers, and challengers discuss business models". Further, the contest was announced in a Bachelor course of Innovation and Technology Management at the University of Vienna.

4.3 Sample characteristics.

Originally, 41 ideas were submitted. However, 11 ideas had to be excluded in the pre-selection as they covered topics alien from the problem posed. Hence, 30 ideas were selected for the actual analysis. The ideas were submitted by 25 participants with 2 of the participants having contributed two ideas and one participant without further data. The results showed that the sample consisted of 36 percent females and 64 percent male contributors, the average age was 29 years ($SD = 8.6$). 50 percent of the contributors were between 22 and 35 years old. The boxplot below depicts the distribution of age among the participants.



Figure 6. Distribution of age among the idea contributors

4.4 Evaluation of ideas.

4.4.1 Degree of change.

To begin with, the degree of change was evaluated by counting the number of individual business model components which were covered by the suggested idea. Although it was valid if the contribution targeted only one component (e.g. a new channel), many participants provided a comprehensive idea, which included more than just one business model component. Thus, the degree of change is a count variable ranging from 0 – 9 (Waldner & Poetz 2015, p. 16). The degree of change is a measure to indicate the radicalness of a business model innovation (e.g. Hartmann et al. 2013).

4.4.2 Novelty, value, and feasibility.

The actual evaluation of the ideas was performed by Dr. Marc Sniukas and Dr. Georg Stampfl, the two executives and co-founders of the BMG who know the company best and have extensive knowledge on business models and innovation. The criteria for the assessment were determined based on previous studies (e.g., Amabile et al. 2005; von Hippel & Schreier 2006; Waldner & Poetz 2015). The jury was asked to rate the ideas independently from each other regarding the following variables:

- i. **Novelty:** novelty of the idea in comparison to existing target market products
- ii. **Value**
 - a) value of the resulting business model for the subscribers of BMG
 - b) value for the BMG
- iii. **Feasibility:** to what extent can the idea be implemented at a reasonable cost?

A five-point rating scale was used to measure the variables (where 1 = low novelty/value/feasibility and 5 = high novelty/value/feasibility).

Following previous research, the executive's individual scores were averaged for each variable and an innovation index (novelty x value x feasibility) computed which would allow an assessment of the overall quality of the ideas (Poetz & Schreier 2012, p. 12). As a control measure, the jury was asked to indicate whether they would implement the proposed idea 1) fully, 2) partly, or 3) not at all.

4.4.3 Influence of additional independent variables.

As independent variables served the previous knowledge of the participants on the business model canvas, experience with BMG's free trial service, and an existing subscription for the BMG with all questions to be answered either with "yes" or "no". In addition, participants were asked to rate their perception of the task ranging from 1 = very difficult to 5 = very easy.

5 Results of the study.

5.1 Analysis of the quantitative findings

5.1.1 Descriptive statistics

In total, 30 ideas were selected and evaluated. More than the half of the contributions (53.33 percent) included only one business model component. None of the submitted ideas entailed more than 5 components of the business model canvas. Depending on how many components of the model were changed, the contribution can be distinguished as either status quo, improvement or innovation. The classification here is based on the work by Mitchell and Coles (2003, p. 16). Overall, 6.67 percent of the contributions did not change the existing business model, 83.33 percent contributed to an improvement of the business model and 10 percent accounted for a business model innovation. Table 1 depicts the outcome with regards to the degree of change of the business model.

Table 1 Degree of business model change in the submitted ideas

Number of changed business model components	Frequency	Percent	Type of contribution
0	2	6.67	Status quo
1	16	53.33	Improvement
2	7	23.33	
3	2	6.67	
4	2	6.67	Innovation
5	1	3.33	
6	0	0	
7	0	0	
8	0	0	
9	0	0	
Total	30	100	

Individuals who participated in the idea contest on business model innovation contributed suggestions for changing a total of 49 individual business model components. The majority of the suggestions (59.18 percent) concerned the dimension of value creation, suggestions for value delivery accounted for 32.65 percent, and contributions for value capture were only

poorly represented (8.16 percent). The table 2 below shows the distribution of the suggestion according to the business model components.

Table 2 Distribution of the ideas within the business model components (based on Osterwalder et al. 2005, p. 18)

Components	N	Percent	Pillar	Dimension
Value proposition	14	28.57	Product	Value creation (29)
Key resources	1	2.04	Infrastructure management	
Key activities	7	14.29		
Key partnerships	7	14.29		
Customer relationships	4	8.16	Customer interface	Value delivery (16)
Customer segments	3	6.12		
Channels	9	18.37		
Revenue streams	4	8.16	Financial aspects	Value capture (4)
Cost structure	0	0		
Total	49	100		

5.1.2. Outcome regarding novelty, value, feasibility, and innovation index

The five-point rating scales were merged into one novelty, value, and feasibility index, respectively.

Novelty: 50 percent of the ideas scored between 1 and 2.5, with the highest score of 4. The median was 1.5. On average, the score of 2.04 was achieved (SD = 0.82).

Value: The scores for both value aspect, i.e. value for the customers and value for the BMG were merged into one. 50 percent of the ideas received a rating between 1 and 3. The median score was 2.13 and the maximum score 4.25. The average score accounts for 2.33 (SD = 1.04).

Feasibility: Here too, 50 percent of the ideas ranged between 1 and 3 with a maximum score of 5. The median was 2.5. On average, the score was with 2.58 (SD = 1.12) the highest of all three dimensions.

The comparison between the three dimensions shows that a higher number of the ideas from the sample are valuable and feasible and fewer are novel. The figure below represents the distribution of the scores for the three dimensions.

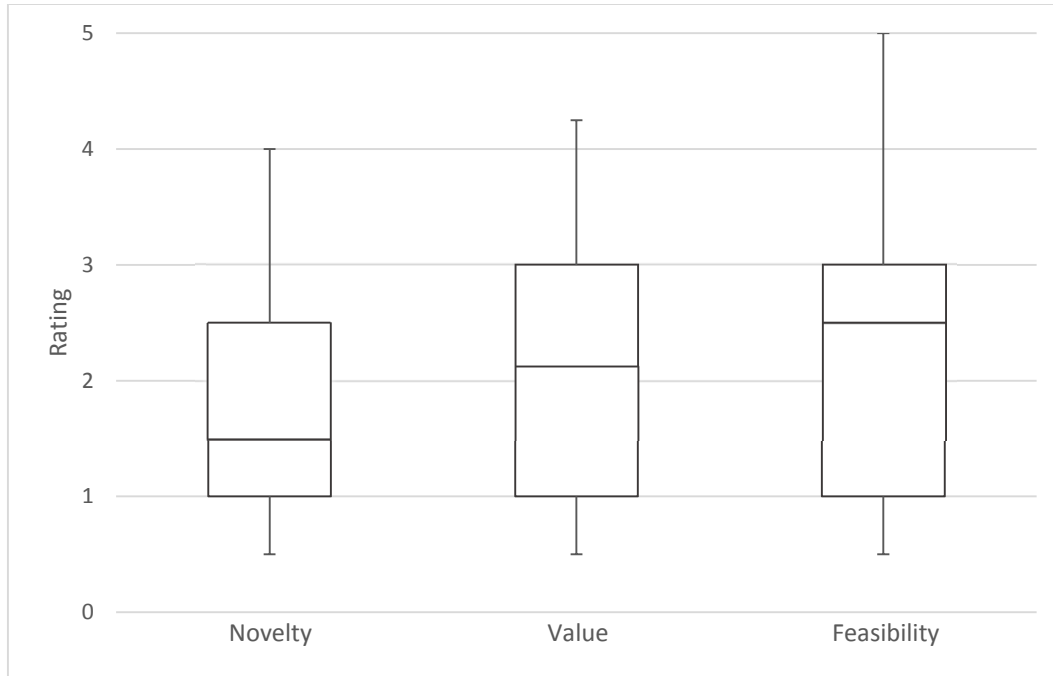


Figure 7. Distribution of the rating for the three dimensions

In addition, the interrelationship between the three dimensions was computed. Surprisingly, feasibility was positively correlated with value ($r = 0.526$), ($p = 0.008$). Novelty was overall slightly negatively correlated with feasibility ($r = -0.039$), however, insignificantly ($p = 0.855$). Value and novelty were positively correlated ($r = 0.347$) but insignificantly ($p = 0.097$).

Following the paradigm of “long tail of innovation” coined by Fleming (2007) who claimed that “almost all inventions are useless; a few are of moderate value; and only a very, very few are breakthroughs” (Fleming 2007, p. 69), this pattern could not be observed in the results. For the novelty dimension, 5 (16.7 percent) and 10 (33.3 percent) ideas account for the best 10 and 20 percent respectively of the novelty distribution. The ideas were rated on average 2.04 in terms of novelty. The figure 8 represents the ideas that fall in the category of the top 10 percent of novel ideas.

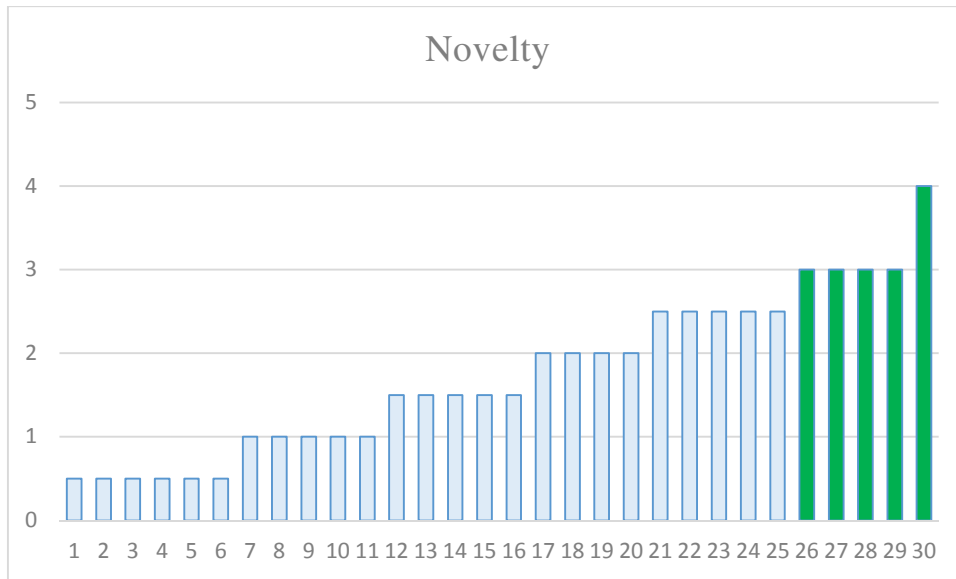


Figure 8. The top 10 percent of ideas in terms of novelty

Regarding the value dimension, 3 (10 percent) and 9 (30 percent) ideas range in the top 10 and 20 percent respectively of the value distribution. The average rating for the value was 2.33.

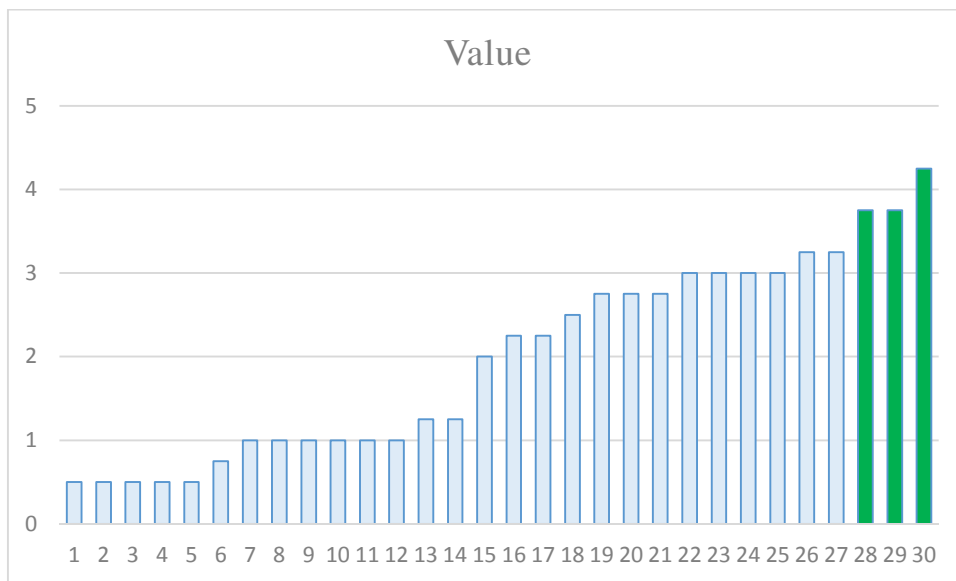


Figure 9. The top 10 percent of ideas in terms of value

Assessing the feasibility dimension, 3 (10 percent) and 9 (30 percent) ideas range in the top 10 and 20 percent respectively of the distribution. The average rating for feasibility was 2.58.

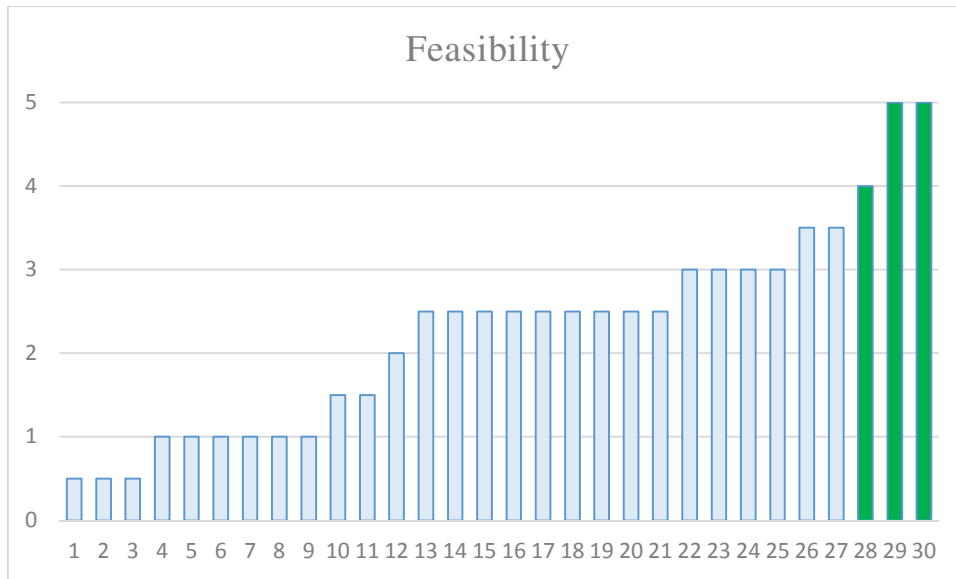


Figure 10. The top 10 percent of ideas in terms of feasibility

Innovation index

As mentioned above, the innovation index is the product computed on the basis of the three dimensions novelty, value, and feasibility. It is a measure for the overall value of an idea with the maximal score of 125 since 5 is the highest possible score for the dimensions novelty, value, and feasibility. The results below show that the achieved value is significantly below this maximal score.

The innovation index ranges from 0.125 to 38.25 as the highest score. It was also found that 50 percent of the ideas range between 1.38 and 19.27. The average score is 11.35 (SD = 11.71). The boxplot visualises the distribution of the ideas regarding the innovation index.

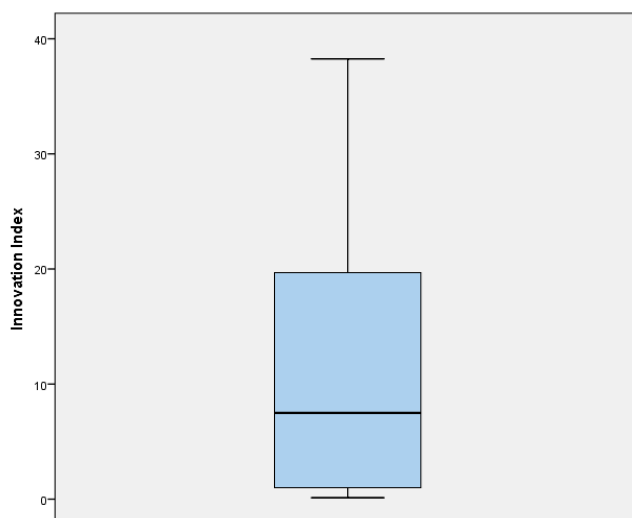


Figure 11. Distribution of the ideas based on the innovation index

Based on the presentation by Piller and Walcher (2006, p. 315), figure 12 depicts the number of ideas per innovation index interval of six. The results show that most of the ideas (13) obtained a score between 0 and 5. 57 percent of the ideas were rated between 0 and 10 in terms of the overall innovation value. The number of ideas decreases as the innovation index increases. Only in the last interval there is a slight increase in the amount of contributions.

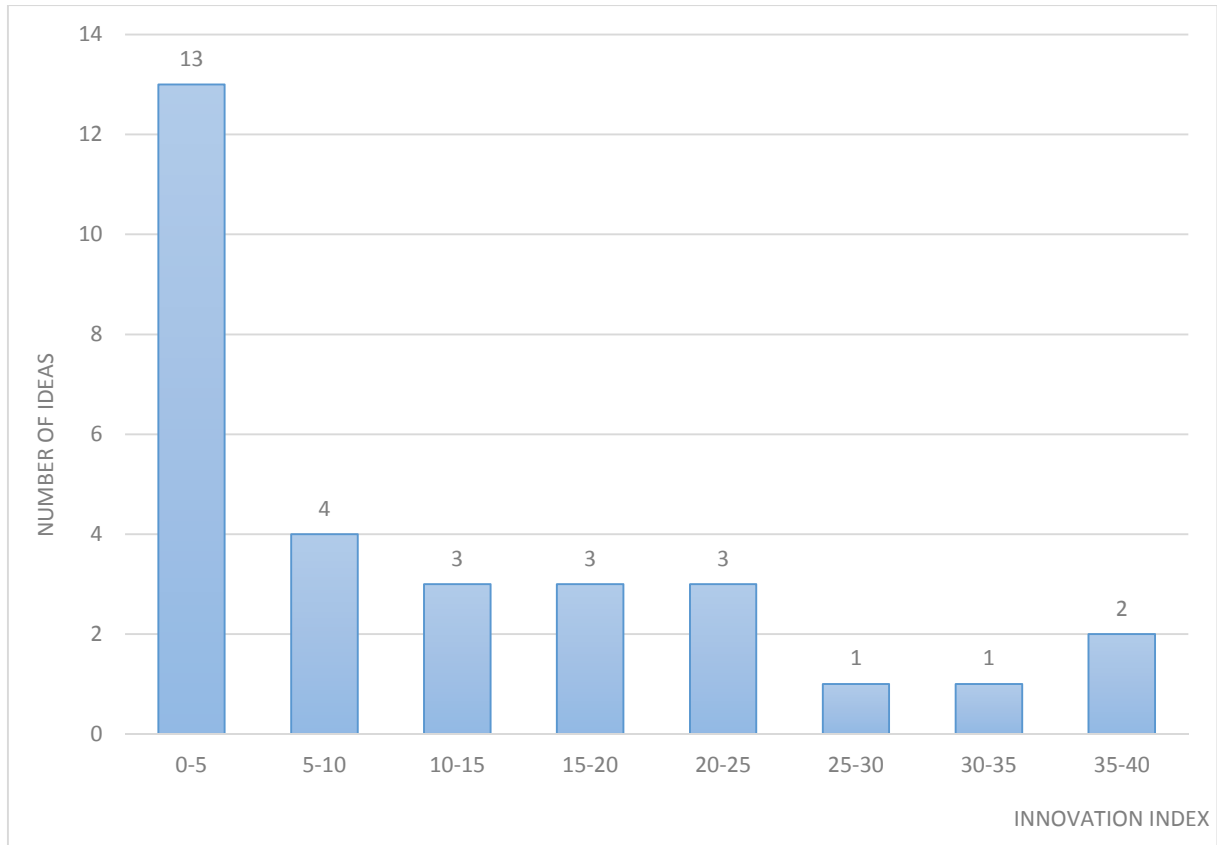


Figure 12. Number of ideas per innovation index interval of six

The evaluation of the innovation index showed that 3 ideas (10 percent) range in the top 10 percent. 6 ideas (20 percent) range in the 20 percent of the distribution for the innovation index.

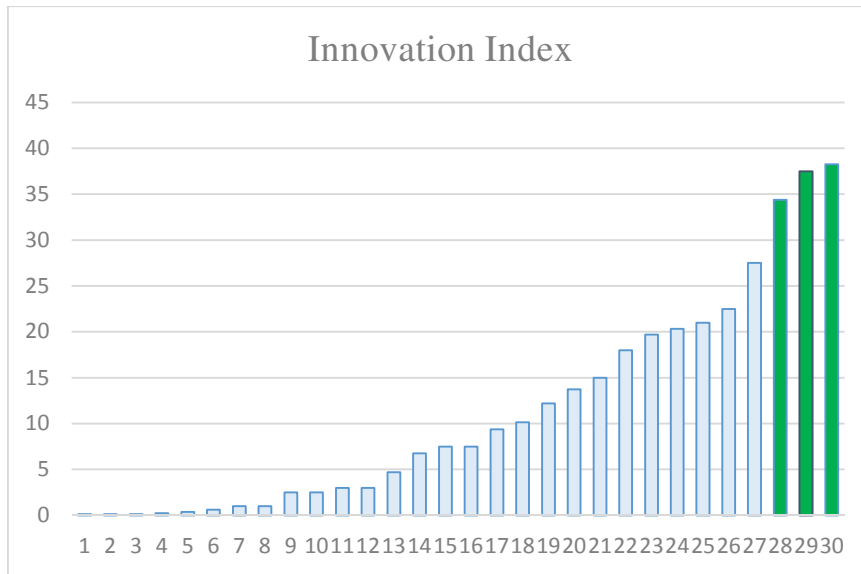


Figure 13. The top 10 percent of ideas in the innovation index

5.1.3 Findings about the independent variables

This part is dedicated to the investigation of the role of the independent variables in the idea submission and their influence on the overall of the ideas. 11 contributors (36.7 percent) used the business model canvas before and 5 individuals (16.7 percent) had previous experience with the free trial service. Only 2 contributors (6.7 percent) had a subscription of the BMG. In addition, only 1 person (3.3 percent) assessed the task as very easy. The majority (56.7 percent) perceived the question of the contest as quite complex.

In the following, the frequency of ideas related to the respective variable are presented categorized as the top 25, 50, and 75 percent of the ideas in terms of the overall value (innovation index). The first variable refers to the previous use of the business model canvas. Whereas in the top 75 percent of the ideas more participants did not have any experience with the business model canvas, the findings for both the top 50 and 25 percent show that more people used the canvas before.

Table 3 Number of idea contributions related to previous use of the business model canvas

	YES	NO	Σ
TOP 25% OF IDEAS	5	3	8
TOP 50% OF IDEAS	9	7	16
TOP 75% OF IDEAS	9	13	22
ALL IDEAS	11	19	30

It was also found that contributors who indicated experience with the business model canvas submitted ideas which regarding the degree of change, ranged from 1 to 5 business model components. However, for the majority (4 ideas) only one business model component was submitted.

Further, it was of interest if the participants made use of the free trial service of the BMG. The trial service provides access to three business models at no cost. The results demonstrate that the difference between the number of those who used the free trial service and those who did not use it slowly diminishes with the rising overall value of the ideas. Within the top 25 percent of the ideas, 3 contributors used the service and 5 did not use it. However, this fact can be distinguished from the frequency within the top 75 percent of ideas where 5 contributors voted for “yes” and 17 for “no”.

Table 4 Number of idea contributions related to previous use of the free trial service

	YES	NO	Σ
TOP 25% OF IDEAS	3	5	8
TOP 50% OF IDEAS	5	11	16
TOP 75% OF IDEAS	5	17	22
ALL IDEAS	5	25	30

With reference to the quantity, contributors who used the free trial service previously, submitted ideas who encompassed a degree of change from 1 to 5 business model components. In contrast, those who did not use the trial service before submitted ideas which affected up to 4 business model components.

Moreover, the participants were asked if they had a subscription of the BMG. In total, only two contributors answered this question with “yes”. These participants proposed ideas with a degree of change of 1 and 5 business model components respectively. Within the best 25 percent of the ideas, one contributor had a subscription currently. The majority of the contributors did not have any subscription.

Table 5 Number of idea contributions related to availability of a subscription for the BMG

	YES	NO	Σ
TOP 25% OF IDEAS	1	7	8
TOP 50% OF IDEAS	2	14	16
TOP 75% OF IDEAS	2	20	22
ALL IDEAS	2	28	30

Finally, it was measured how the participants of the contest perceived the task. On a five-point scale they were able to mark the task as rather difficult or rather easy. In each of the categories, the majority rated the task as quite complex. Whereas, in all ideas 4 contributors rated the task as very complex, no one assigned such perceived difficulty of the task within the top 25 percent of the ideas. Only one contributor rated the task as very easy.

Table 6 Number of idea contributions related to the perception of the task

	VERY COMPLEX	QUITE COMPLEX	NEITHER NOR	QUITE EASY	VERY EASY	Σ
TOP 25% OF IDEAS	0	5	1	1	1	8
TOP 50% OF IDEAS	1	10	2	2	1	16
TOP 75% OF IDEAS	3	13	2	3	1	22
ALL IDEAS	4	17	5	3	1	30

Altogether, conducting an analysis of variance (ANOVA) none of the independent variables was found to have a significant influence on the innovation index:

Use of business model canvas: $F(1.25) = 1.182, p = 0.287$

Use of free trial service: $F(1.25) = 0.271, p = 0.607$

Availability of subscription of BMG: $F(1.25) = 0.403, p = 0.531$

Assessment of the task: $F(1.25) = 0.482, p = 0.494$

5.2 Analysis of the qualitative findings

In this section, the qualitative outcome will be investigated. In the first instance, the ideas which were rated as the overall three best ideas in terms of novelty, value, and feasibility are outlined. The contributors of these ideas were awarded with a price in form of Amazon gift cards and subscription packages for BMG.

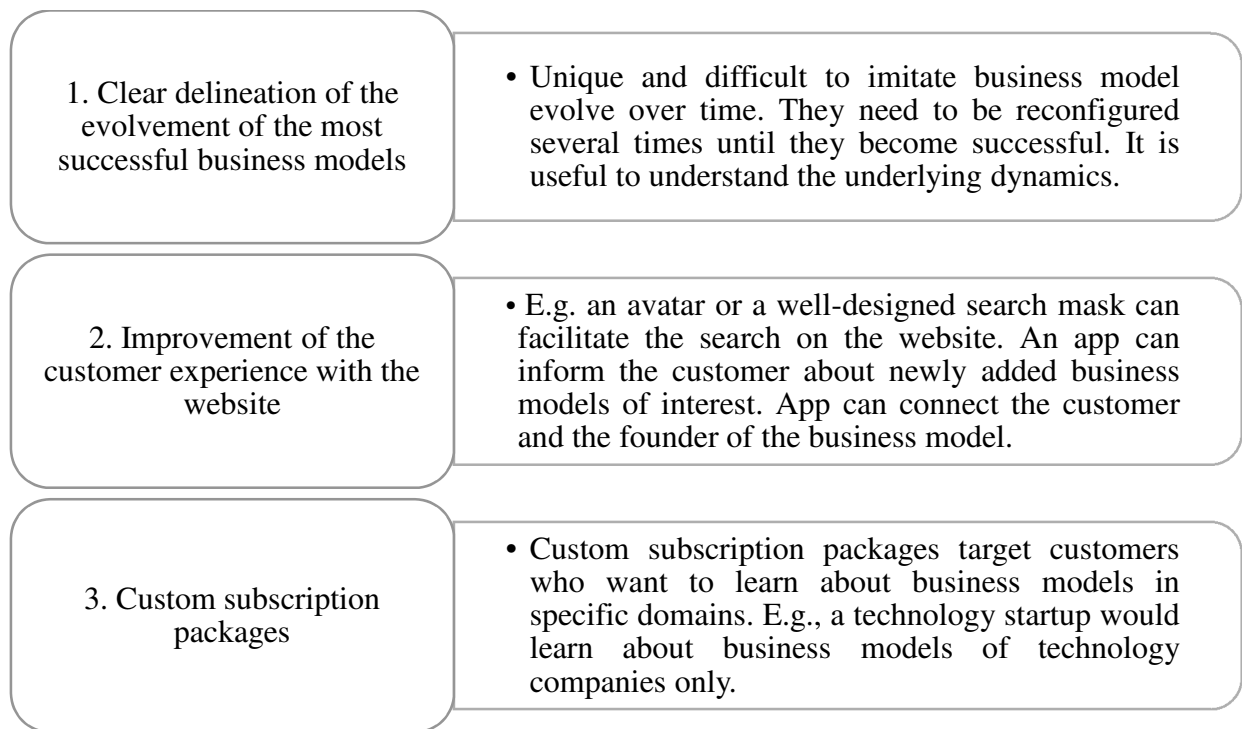


Figure 14. The top three ideas

To determine the scope of the idea, it was investigated which dimension and which components of the business model the ideas touched upon. The three ideas concerned all the three dimensions, i.e. value creation, delivery, and capture. However, they included only one and two business model components. Based on the classification stated above, the ideas provided an improvement of the business model.

Table 7 Role of the top three ideas in the business model structure

Top 3 ideas	Dimension	Business model component
1.	Value creation	Value proposition
2.	Value creation Value delivery	Value proposition Channels
3.	Value capture	Revenue streams

None of the business model ideas could win approval for full implementation by both the experts. While expert 1 opted for full implementation of idea №3 and idea №4, expert 2 recommended that idea №9 and idea №11 could be implemented completely. For partial implementations, the experts reached consensus on 6 ideas listed below.

Table 8 Ideas rated as eligible for a partial implementation

Suggested idea	Business model component
a) Simulation of business models b) "problem solving" of the client's BM	Key activities
Improved presentation of value proposition How can people learn about BMG?	Value proposition Channels
Interactional (customers can share ideas) and educational Advertising spaces for companies	Customer relationship Revenue streams
Partnerships with business incubators for promotion of BMG Business incubators as channels	Key partnerships Channels
Higher number of BM; linking BM to a market analysis	Value proposition
Provide customized subscription packages according to the user's preferences	Revenue streams

6 Discussion.

Can crowdsourcing be used to generate novel, valuable, and feasible ideas for a business model innovation thus supporting the focal firm in this process? Having investigated this research question with a case study on an online start-up, there is to say that the 30 ideas submitted addressed all three dimensions, i.e. value creation, delivery, and capture. However, the contributions provided suggestions for a business model improvement rather than business model innovation since the vast majority of the ideas touched upon between one and three business model components. The previous finding that crowdsourcing can yield ideas aiming at a high degree of change could not be replicated (cf. Waldner & Poetz 2005, p. 31).

In the task description, contributors were asked to suggest a change for at least one business model component. It is possible that the solvers viewed the task as fulfilled when having contributed only one business model component change, and thus did not regard it as necessary to take further efforts for additional suggestions. This is in line with the fact that most of the solvers perceived the task as quite complex and hence, providing further suggestions is associated with higher investment of resources, such as time. Moreover, most of the participants were not users of the BMG, which might have made it difficult for them to grasp its business model entirely to be capable of forging several business model changes at once.

Evaluating the distribution of the ideas within the business model components, ideas for a total of 49 components were submitted. Almost one third of these referred to the component “value proposition”. While approximately 60 percent of the ideas supported the value creation dimension, the least amount of attention was received by the value capture dimension. The component “cost structure” was especially neglected in the contributions. It can be argued that it is easier and more intuitive to create ideas for components within the value creation dimension than value capture as it requires a deeper understanding of the business model structure.

The analysis of the outcome regarding novelty, value, feasibility, and the overall value defined as the innovation index was another important part of the study. It was found that the crowd-based method applied for the BMG indeed produced useful outcomes which were more valuable and feasible than novel. Some of the contributions were of a rather general nature, which may allude to the fact that the participants did not understand either the presented business model of the BMG or the task thoroughly. It was surprising that value was positively correlated with feasibility. The well-established trade-off between maximising the output by offering a high customer value and minimising the input by realising ideas that are cost and time-efficient could not be replicated here (cf. Poetz & Schreier 2012, p. 12). One reason may be the low number of the contributions, which proves less conclusive. The same applies for the paradigm of “long tail of innovation” as the patterns could not be observed in the case of the BMG. Here, the top 10 percent of ideas in terms of the three dimensions (novelty, value, feasibility) also constituted at least 10 percent of all ideas.

The innovation index reached 38.25 as the highest score which represents one third of the maximal potential score of 125. About the half of the ideas were rated just below the score 20. More than a half of the ideas were further assessed with a score between 0 and 10. The results

may be explained by the fact that many ideas received a very low rating in all the three dimensions.

The findings on the additional independent variables revealed that the majority did not have previous experience with the business model canvas. As far as the relationship with the BMG is concerned, less than 20 percent used the free trial service and less than 10 percent actually had a subscription. It is surprising that taking into account the number of subscribers (over 3,500 at the beginning of the contest), not more customers of the start-up have participated. In fact, it would have been a convenient opportunity for the users to participate in the contest and to express one's needs and propose improvements of the business model. It may be argued that neither BMG as an online content-driven start-up has a strong connection to its customers, nor does it have an established brand or a tangible product to which customers would feel more committed. This fact raises the question in general how online start-ups interact with their users and if this relationship influences crowd-based activities for complex problems. There is to add that users can conduce to the BMG by requesting business models for research. In this context, it is needful to shed light on the role of the incentives in the contest. The prizes for the three winnings ideas included subscriptions for the BMG and gift certificates for Amazon. The rewards were not as much oriented on the assumed value of the contest for the start-up, as on the available budget. It may be argued that since the contest attracted mostly non-users, it would have been more fruitful with higher rewards to spur the extrinsic motivation of potential participants. Moreover, individuals willing to participate in the contest had to go through a registration process on the idea platform Neurovation. Possibly, this process discouraged potential contributors from participating in the competition.

On the whole, the analysis of the additional independent variables was less fruitful as the distribution of the replies was not equal among the respondents for the dichotomous variables. For instance, 11 participants answered the question on their previous use of the business model canvas with "yes" but 19 participants denied it. The contrast is the strongest with the question related to the availability of a subscription for the BMG as only 2 participants affirmed it. For this reason, the validity of the results is in question. Nevertheless, it is reasonable to outline the tendencies of the results. Speaking in terms of the independent variables in reference to the innovation index, it was found that the top 25 percent of ideas included more submissions from participants who used the business model canvas beforehand. With the reduction of idea quality, the number of those increased who did not use the business model canvas in advance. Regarding

the question on the previous use of the free trial service of the BMG, absolutely more participants whose ideas were categorised within the top 25 percent replied with a “no”. However, more than half of the contributions with previous use of the free trial service belong to the top 25 of ideas whereas it is only one fifth of the contributions with a negative answer. The vast majority of the contributors did not have a subscription for the BMG and, hence, it seems that this fact is not of importance for the quality of ideas. Altogether, 70 percent of the participants perceived the task as very complex or quite complex. There was no evidence that any of the independent variables influenced the innovation index significantly.

The pre-screening and evaluation of the ideas was of importance to select those ideas with the highest assumed potential for the start-up. It is obvious that not all submitted ideas can be used for experimentation in real life, which is why the analysis helped select the most relevant ones. Now, especially the three ideas determined as the winning ideas of the contest may be tested in real life. In addition, the start-up may make use of the ideas rated as eligible for a partial implementation and include them in the experimentation process. There is to emphasise that the real value of an idea, especially in monetary terms, remains to be seen when implemented into the existing business model. Only then the potential of the business model change and its impact on the dynamics of the entire business model will become apparent. Time also plays a pivotal role in the innovation process.

But besides the value generated through the idea contributions, the BMG benefitted from the idea generation contest as it attracted more eyeballs to the website and positively influenced the development of sign-ups. Thus, it is fair to say that crowdsourcing initiatives may support start-ups in the customer acquisition process and marketing due to their wide reach.

The number of the submitted ideas within this study is not sufficient to claim generalizability, which is why further research is needed. Nevertheless, by drawing on the tendencies in the study and the results of the study by Waldner and Poetz (2015), which provided first insights into the use of crowds for the process of business model innovation a framework can be proposed.

Recommendations for the use of crowdsourcing in the process of business model innovation:

- Previous use of the business model canvas may help the crowd in idea creation.
- A crowdsourcing initiative does not necessarily require the participation of users. This is consistent with previous research showing that actually being a fan decreases the likelihood to submit an idea at all and to contribute more than one component of the business model (Waldner & Poetz 2015, p. 24).
- It is not important if the crowd perceives the task as difficult. Thus, organisations should not hesitate to crowdsource complex tasks.
- Characteristics of submitter as compared to non-submitters (Waldner & Poetz 2015, p. 24):
 - Perceived fairness: It significantly increased the likelihood that users contribute an idea at all and also the degree of change, i.e. the number of components submitted. However, it did not impact the quality of ideas.
 - Prior business experience: Contributors with business knowledge were more likely to propose ideas for delivering and capturing value.
 - Higher levels of lead useriness and personal creativity: These features had an effect on the degree of change of the business model.
 - Prior experience with developing business models and launching a company: This fact had an influence on whether or not users submit ideas for capturing value. Generally, experience with business model innovation decreased the likelihood of contributing an idea.

7 Limitations and future research.

Although the present study produced some interesting results on the benefits of crowdsourcing for a business model innovation in an online start-up, the study has some limitations. The first difficulty consisted in recruiting participants for the contest. To reach many potential problem solvers, information on the idea generation contest was disseminated in social media platforms, in an online forum for business model innovation, through information session organised in a university course personally, and by a newsletter to specifically reach users of the BMG. Despite the effort, the response rate remained low. Hence, it is difficult to draw conclusions based on the low number of ideas generated. In order to deepen the knowledge in

this regard, further research is needed, in particular focusing on crowdsourcing as part of a business model innovation in an online context. As digital business models are growing and changing over time, it is promising to examine the benefit of crowdsourcing. Another untapped field of studies are mobile business models. Applications approach their target market in a different way and customers maintain different relationships as compared to online businesses. In this sense, it holds promise to study the effect of crowdsourcing in business model innovation in such an environment.

Another limitation lies in the analysis of the results. For the quantitative analysis it is noteworthy that although the contributors provided a suggestion for at least one business model component, their suggestion might also affect other business model components if implemented in real life. For instance, if the suggestion adds a new key activity, consequently the value proposition and also the revenue streams and the costs will be affected. It is possible that other business model components will be touched upon the suggestion as well. Thus, to be precise other feasible changes in business model components need to be counted as well. Future research can itemize the submitted ideas for the business model components more specifically.

Furthermore, to increase the evidence for the additional independent variables of the study, the distribution of the responses should be comparable, which was not the case in the study. This again is related to the low number of contributions. Also, more variables can be added as it was performed in the study by Waldner and Poetz, however, in the digital business environment. The focus of future research may also be laid on start-ups. Especially if a start-up does not have a definitely designated business model, crowdsourcing has potential to shape it. It would be further interesting to develop models that help monetise the value of crowdsourcing for business model innovation. Generally, it is challenging to grasp the monetary value of complex problem solving such as business model innovation since many underlying influencing factors exist. On the one hand, the costs for a crowdsourcing initiative are distributed among the participants. On the other hand, the benefit provided for the winning idea might be out of proportion with the value derived from the idea. The effect here can be compared between companies of different sizes, industries, and cultures involving users and non-users.

Conclusion.

Driven by the need to sustain their competitive advantage, companies have started to explore new paths in innovation as it is increasingly recognised that the introduction of innovative products and enhanced operational processes are not enough to maintain firm performance. The debate about business models as well as the selection of the adequate model for the own business can be ascribed to the emergence of the knowledge economy and advancement of digital technology. Business models should be considered from a dynamic perspective as internal or external factors may bring on a need to innovate the business model over time. Thus, in recent years, business model innovation has become a popular buzz term in business media but also a unit of analysis in scientific research.

The present thesis has shown that business model innovation can help achieve a competitive advantage if it results in a differentiated and difficult to imitate but effective and efficient business model. Therefore, companies need to gain a deep understanding about the business model design options, customers' needs as well as their technological potential. It is important that business model innovation is not considered as an isolated activity but it rather should be coupled to the company's long-term strategy.

However, while undergoing the process of the business model innovation, it is crucial that the effectiveness of the present model is preserved until the new one can be taken into operation. In general, decision-makers are encouraged to couple business model innovation with product or process innovation, if not even substitute them since business model innovation has the potential to facilitate the trade-off between innovation costs and future value. In particular, it is emphasised that business model innovation should become a continuum in the course of the company's business activity.

This thesis further introduced the concept of crowdsourcing and outlined how collective knowledge can help overcome the lack of internal problem-solving capability or stimulate an existing one, in particular in the context of a business model innovation. Especially in the idea generation process, crowdsourcing enables organisations to access external knowledge and democratise business ideas with the aid of technology.

The conducted idea generation contest drawing on crowd-based search provided beneficial input primarily for a business model improvement for the BMG. Considering the low number of idea contributions, the results cannot be generalised and further research is needed for new insights. Nevertheless, crowdsourcing is a valuable mechanism to spark inspiration and BMG has seized some themes which could be extracted from the contributions. It is currently working on the ideas suggesting to enhance the guidance to find suited business models for the customers and to offer the possibility for users to design business models. Also, the idea to engage in partnerships for additional distribution and marketing channels is being deliberated.

To conclude, this thesis can be viewed instrumental for BMG and other online start-ups to not only improve their business models, but also to learn more on how they can have additional engagements with their (potential) customers through crowdsourcing.

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Appendix I Excerpt of the idea generation contest

Business Model Innovation

Business Model Gallery
WANTED!

Challenge:

Help improve the current business model of an online start-up!

Prize: **Host:**

Subscription packages for Business Model Gallery: **Universität Wien**

1.-3. Ranking: Amazon gift certificate worth 50€ and

1. Rank: Subscription Pro
2. Rank: Subscription Advanced
3. Rank: Subscription Basic

Terms and conditions:
[Read the conditions of participation](#)

Description

Description:
 We want your ideas on how to improve the present business model of the online start-up Business Model Gallery!
 Which component of the business model do you think can be changed or extended? And how?

Example:
 Component: "Channel"
 Idea: "Mobile application can be used as an additional channel"

We are not asking to change the entire business model!

Here you can see the current business model of the **Business Model Gallery**

Please also complete this form to support the research: [HERE](#)

Rewards:

We will reward your input with a total amount of 720€

1. Amazon gift certificate worth 50€ + Subscription Pro for the Business Model Gallery
 2. Amazon gift certificate worth 50€ + Subscription Advanced for the Business Model Gallery
 3. Amazon gift certificate worth 50€ + Subscription Basic for the Business Model Gallery

About Business Model Gallery:
 Business Model Gallery provides insights into a wide range of different business models by analyzing their components in detail and visualizing them. The platform can be used as a platform for inspiration for companies wishing to innovate their business models.

Background:
 This contest is part of a research project organized by the Department of Innovation and Technology Management of the University of Vienna in cooperation with Business Model Gallery. We will use your ideas for the Business Model Gallery and also the research project.

This video will help you to understand the concept of a business model.

#Thanks a lot for your participation! We are

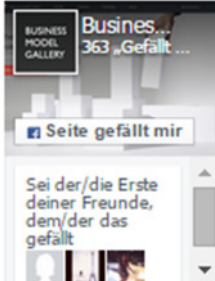
Final Ranking
 **Feedback Ideas (41)**

Moderator(s)

 **Anna Lvovskaia**

Do you have any questions regarding the challenge?
 Then write a message to the **Moderator(s)**.



Kooperationspartner

 Business Model Gallery

Latest 3 Feedback Ideas



Webinar
by: justine077

 1  0  0



Weitere Kanäle
by: a1248138

 7  1  1



Bewertung alternativen

Appendix II Contributed ideas

1. Folgende Erweiterungen für das Geschäftsmodell bzw. einzelne Blöcke: Key-Acivities: a) Dieser Bereich könnte um weitere Aktivitäten erweitert werden wie z.B. die "Simulation von Geschäftsmodellen". b) Eine weitere Möglichkeit wäre die „Problemlösung“ für Geschäftsmodelle den Kunden anzubieten. Kunde gibt seine Anforderungen auf der Plattform bekannt und erhält passende Geschäftsmodelle angeboten.
2. Partner: Kunden könnten wiederum als Partner das Geschäftsmodell unterstützen, indem diese in die Entwicklung neuer Geschäftsmodelle integriert werden. Customer-Relationships: Erweiterung durch Co-creation mit den Kunden - Aufnahme in das Modell. Revenue-Streams: Das Geschäftsmodell könnte auch in Form eines Lizenzmodells angeboten werden.
3. Nun ja, die Fragestellung und das gesamte Konzept sind ja nicht einfach. Die Analyse eines bestehenden Geschäftsmodells macht auch für einen Branchenfremden Sinn. Wo gibt es Stärken und Schwächen? Welche Elemente können übernommen werden? Für viele StartUps gilt, auf sich aufmerksam zu machen. Die Idee finde ich gut, wie aber hätte ich von dieser Firma erfahren sollen? Vielleicht sollte hier angesetzt werden. Verbesserte Darstellung des Nutzens für den Kunden. Beispiel: ich habe ein Unternehmen > komm auf die Seite und gib deine Eckdaten dazu ein > nach Abgleich mit der Datenbank sehen wir hier Potential > einfache Dinge werden schon mit der Registrierung angezeigt > Details im Premiumpaket. So wie ich es jetzt habe - so hat es auch Firma XY und wurde damit erfolgreich > weitere Schritte sind ... & wollen sie einen Berater von uns? Test der Seite: "Health" > BurgerKing?
4. Es sollte die Möglichkeit vorhanden sein, weiterführende Internetquellen mit Hinweisen zu den einzelnen Bausteinen des Modells zu verlinken. Dadurch stehen auch anderen MitarbeiterInnen Quellen, Verweise auf andere Dokumente usw. zur Verfügung - mit dem Hinweis, von wem und wann diese eingebettet wurden und weshalb dieser Link wichtig erscheint. Diese Internetquellen sollen editierbar und gelöscht (Protokollierung!), aber auch bewertet werden können.
5. Ich würde bezüglich der Channels versuchen Kollaborationen mit Unternehmen zu erzielen, sodass ein Link von der Homepage der jeweiligen Unternehmen zu http://www.business-model-innovation.com gibt und auch retour. Vergleichbar wäre das mit dem Facebook oder Twitter Logo, das ja auf die Profile der Unternehmen verlinkt. Auf diese Weise würde sicher der Bekanntheitsgrad der Seite erhöht werden, auch wenn es natürlich schwierig wird, diese Kollaborationen zu erreichen. Im Gegenzug könnten z.B. gratis Werbeflächen angeboten werden.
6. For practitioners and researches alike, it would be interesting to see how the most successful business models in the Business Model Gallery database have had to change and evolve, until they reached the current (successful) configuration. For instance, Nespresso did not start with its unique, difficult to imitate and consistent business model. The idea of a premium coffee experience for private households evolved over time. The business model had to be reconfigured several times, like the pivot from offices to affluent households or the launch of its own "boutiques" before the business model became a success. It would be great to understand these dynamics.
7. Ich würde noch ein Segment hinzufügen. Ich würde das als „Tester Segment“ nennen. Die Aufgaben dieses Segments wäre einerseits natürlich das Testen des verkaufenden Produktes, damit das Unternehmen ein Feed-Back von den künftigen Kunden erhalten kann. Diese Tester werden, entweder ein fertiges Produkt oder ein Produkt, das noch unter Entwicklung steht, bekommen. Meiner Ansicht nach wäre auch empfehlenswert, einen Fragebogen mitzuschicken. Die Tester können mit den wahren Entwickler zusammenarbeiten und Die Tester können nach ihren Vorschlägen, die tatsächlich in dem Produkt eingebaut wurden, eine Prämie erhalten.
8. Meiner Ansicht nach deckt der Aufbau des Business Models die grundlegenden Aspekte ab. Meine Idee wäre es, dass man sich bereits jetzt Gedanken darüber machen könnte, wie es weitergeht, falls das Geschäftsmodell funktioniert. Ob man ggf. expandieren sollte, mehr Varietät erschließt etc. Falls das Geschäftsmodell fehlschlägt, wäre es hingegen sinnvoll einen Notfallplan bzw. eine Auswegstrategie bereits im Vorhinein beschlossen zu haben. Eine Zukunftsvision im Detail zu erarbeiten wäre utopisch, aber ein kurzer Blick in die Zukunft, der grob auf unterschiedliche Szenarien Rücksicht nimmt, ist in einem Business Model definitiv nicht fehl am Platz. Es wäre folglich nicht als eine Erweiterung zu verstehen, von Veränderungen der bereits vorhandenen Komponenten, sondern viel mehr als ein zusätzliches Segment.
9. Meiner Meinung nach geht aus dem Geschäftsmodell nicht hervor wie die interne Vernetzung des Unternehmens funktioniert! Welche Abteilungen miteinander koalieren => das Organigramm ist nicht klar strukturiert! Wer ist für was, mit wem und wo verbunden! Wer ist der interne Kunde? Man hat nicht nur externe Kunden sondern auch interne Kunden die von einer Abteilung oder mehreren Abteilungen abhängig sind. Ein klar strukturiertes Organigramm macht es auch für einen Kunden einfacher zu sehen => "Aha, dieses Unternehmen hat klare Strukturen nach aussen aber auch nach innen!" Muss nicht unbedingt bis ins letzte Detail alles aufgerissen werden, eine flache, wenn gewollt, Hierarchie ist ausreichend => aber eben klar

definiert wer, was, wo! Ein einfaches Organigramm ohne viel Schnick-Schnack wo ich auf einem Blick alles wichtige sehe.
10. Qualitätskontrolle und -sicherung sind sehr wichtige Maßnahmen zur Sicherstellung festgelegter Qualitätsanforderungen. Qualitätsmanagementsysteme sichern die Entwicklung einer Organisation, das wiederum trägt dazu bei, dass Unternehmen entscheidende Vorteile gegenüber der Konkurrenz entwickeln. Zu Werkzeugen der Qualitätssicherung zählen Optimierungskreisläufe, Audits, Prozessbeschreibungen, Business-Intelligence-Systeme, etc. Business-Intelligence-Systeme finde ich als eines der wichtigsten Verfahren und Prozesse zur Analyse, Sammlung, Auswertung und Darstellung von Daten in elektronischer Form. Mit Business-Intelligence-Systemen verfolgt man das Ziel, Erkenntnisse zu gewinnen, wie Unternehmen ihre Geschäftsprozesse sowie Kunden- und Lieferantenbeziehungen gewinnbringender umsetzen bzw. pflegen, ihre Kosten senken und ihre Wertschöpfung steigern können. Prozesse von Business-Intelligence / Data-Warehouse-Systemen: Datenbeschaffung, Weiterverarbeitung, Datenhaltung, Datenauswertung
11. Access to a user help desk is provided to end customers in case they face problems with their computer. Customer segment: Senior citizens, Best-agers, inexperienced computer users, private customers searching for presents for family members. Service: Access to the computer and problem solving (e.g., via Teamviewer function) Price model: Hourly rates and subscriptions for the extended service (e.g., antivirus protection with updates, data cleansing, etc.) Channel: Internet booking and active promotion in reliable media
12. Component: Revenue Streams Idea: Advertising spaces for companies that will help start-ups carry out necessary tasks once they have a complete business model from the site. Component: Customer Relationships Idea: Interactive (some live sessions that allow customers to share ideas or get inspired by guest "speakers") Educational (students can come in with fresh ideas or the site can educate them with basic ideas)
13. Passend zu den Key-Partners, der Kostenstruktur und den Customers fehlt noch das Segment der Finanziere. Finanziere beschreiben Geldressourcen (diverse Geldgeber und Geldgeberinnen, Fonds und Einrichtungen etc.) für die es eine Motivation geben muss. Diese Motivation kann sich natürlich mit jenen von Kunden decken, allerdings wird es auch höhere/indirekte Ziele geben, die angestrebt werden (Reputation, Beteiligung+Wachstum, Konkurrenzschwächung, etc.). Finanziere sehen dieses Modell von aussen. Sie brauchen eine Vision, in der sie ihre Motivation finden um aufmerksam zu werden. Dieses Modell sollte als Blase in der freien Marktwirtschaft dargestellt werden, deren Membran in den Farben der Vision schillert. Die Finanziere liegen ausserhalb oder an dieser Blase. Es müssen in der freien Marktwirtschaft noch mehr Blasen zu sehen sein - nämlich die direkte Konkurrenz, die ein ähnliches Setup von Customer Segmenten haben.
14. Startups who are looking for guidance in giving a concrete direction to their ideas and in turn convert themselves in to a successful business. Business model gallery could help them in understanding their core competencies and hence guide them in marketing themselves efficiently.
15. Derzeit wird die Website businessmodelgallery.com als einziger Kanal verwendet. Dadurch kann das Produkt nur langsam seinen Bekanntheitsgrad steigern. Um den Bekanntheitsgrad zu steigern und gleich zu Beginn das richtige Segment zu erreichen, Start-Ups. Wäre eine Zusammenarbeit mit dem Gründerservice in Wien eine gute Möglichkeit. Indem die Berater des Gründerservice den Start-Ups businessmodelgallery.com vorschlagen erreicht es einerseits die richtige Zielgruppe und andererseits wird das Produkt bekannter.
16. After scanning through the home page of Business Model Gallery, I have two suggestions: 1. The number of available business models has definitely to be increased (about 70 is too little in my opinion). 2. Business models can be coupled to market analysis. It would be also interesting to know if the presented business model is successful or not and why. Therefore, I suggest not only to describe the business model but also to evaluate it in the context of the specific market.
17. Component: Value Propositions Idea: After Sale Service can be used to help costumers realize new business model features which they want to include or try out (e.g. if they don't know how to realize them in an efficient way.). This service will probably also increase customer loyalty.
18. Component: "Revenue Streams" Idea: Provide custom subscription packages for customers interested in learning about business models in specific domains (for example technology). These packages would cost lower than the current subscription charges. For Example: 1) A technology startup might be interested in learning about the business models of other technology companies only. In that case they would have a chance to pay lower price in order to gain access to this restricted set of business models. 2) A new fast food chain might be interested in learning about the business model of the already established fast food restaurants only.
19. Bereich: Channels & insbesondere die Webseite Der Zielgruppe der Business Modell Gallery so komfortabel wie möglich zu machen sollte es eine virtuelle Onlinehilfe geben bspw. in Form eines Avatars oder einer sehr gut gestalteten Suchmaske, die den Filterprozess nicht zu lange erscheinen lassen. Der Avatar z.B. könnte dem Kunden dabei helfen aus der Vielzahl verschiedener Geschäftsmodelle, das für ihn passendste und zutreffendste zu finden (gefiltert nach Kosten, Branche, Produktvielfalt usw.). Eine zusätzliche App dazu, könnte es den Kunden erleichtern mit den einmal online vorgefertigten Kriterien, die „Suchmaske“ sozusagen abzuspeichern und darüber informiert zu werden sobald ein neues, den Kriterien

zutreffendes Geschäftsmodell in der Datenbank erscheint. Die App könnte weiterhin auch gleich den Kontakt zwischen dem Erfinder des Geschäftsmodells und des Interessenten herstellen und damit eine neutrale Verhandlungsplattform bieten.
20. Das Business Model ist recht umfangreich aufgebaut, jedoch sollten mehr Channels für den Vertrieb gewählt werden wie z.B. Informationsstände um grundlegender über Business Model Innovation zu informieren. Darüber hinaus sollte auf die Kostensegmente näher eingegangen werden. Die Key Activities sollten auch noch genauer ausgearbeitet werden, da die Aussagekraft der Punkte recht niedrig ist.
21. Ich finde es besteht ein Defizit im Bereich Channels. Das Produkt letztendlich nur über das Internet zu vertreiben finde ich wenig effizient. Einerseits werden dabei Kosten gespart, andererseits ergibt sich dadurch ein beschränktes Klientel, was das Business hemmt. Obwohl die Mehrheit der Bevölkerung in der heutigen Zeit mit dem Internet vertraut ist, gibt es Situationen oder Produkte, z.B. Reisen, die einen gewissen Grad an Beratung erfordern, den das Internet nicht bieten kann. Deswegen würde ich vorschlagen den Bereich Channel um zumindest den Versand von Katalogen, wenn nicht sogar um die Eröffnung einer Zentrale zu erweitern, die für Kunden zugänglich ist und bei der man sich Beratung nach Vereinbarung holen kann. Je nach Rentabilität können weitere eröffnet werden.
22. I wouldn't limit marketing activities to only social media marketing, but also include traditional means of marketing, both online and offline. In most countries the startup scene is prospering and platforms to promote and support startups are being established. Many people go to the platforms' events to inform themselves about startups, entrepreneurship, business models, markets and use them for networking and exchanging experiences. Why not use this opportunity to promote Business Model Gallery by advertising at their events (flyers, posters, speeches) or on their homepage (banners, links, etc)? Furthermore, you may think about including startup platforms (e.g. Austrian Startups) as key partners. I think both parties may benefit from a cooperation as Business Model Gallery provides the platform a way of "buying a business model" (and thereby the platform's users a direct entry into entrepreneurship) and simultaneously increases its reputation and pool of business models.
23. Um die Website als Channel zu unterstützen könnte man ein Büro einrichten, wo Kunden für Besprechungen hinkommen können und welches man auf der Website abbilden kann. Damit wird das Unternehmen als realer wahrgenommen und gewinnt an Vertrauenswürdigkeit.
24. New segment, service / VP, and activities. Essentially companies and consultancies looking for variations in existing or new business models upload their latest model online seeking other suggestions or improvements. A community then provides recommendations for how to improve the model or other patterns or concepts that could be applied as improvements. The submitter for this service provides an up front fee part of which is taken by the gallery and part of which goes to successful suggesters. Essentially what you are doing with this exercise for your own business model right now (unless this is in fact a test to see if the idea above would work!) This is not a huge revenue spinner but does raise profile. The more important part is that for suggesters to be "approved" by the gallery to take part then they must submit one or two business model profiles for companies currently not in your gallery, thus building up the gallery.
25. Abgesehen davon, dass die abgebildete Kostenstruktur ein wenig mager aussieht (u.a. fehlen Aufwendungen für Räumlichkeiten, auch wenn es nur die temporäre Anmietung ist und jene für Büro- und Geschäftsausstattung), mir fehlt grundlegend die Vernetzung dieser "Wertfelder" in Form von Schnittstellen. Die "Beschreibung der Business Model Gallery" enthält einzelne, nicht verbundene Elemente (nach Mustern zusammengefasste "Cluster") oder "Wertfelder", aber keine Schnittstellen, die den Zusammenhang - mehr noch den Wertetausch! - zu definieren erlauben. Auch auf der Webseite konnte ich nur Aufzählungen von externen Kanälen ausfindig machen, aber nicht die Beschreibung einer Ankopplung. Es fehlt meines Erachtens daher in der Geschäftsmodellplanung von Business Model Gallery die Definition der Schnittstellen (intern und extern, Symmetrisierung, Kopplung) in Form eines Netzplanes von "Wertefeldern". Denn: Ohne Vernetzung findet kein Wertetausch statt!
26. Jede Komponente wird mit einem Adressbuch verlinkt und ebendort gekennzeichnet, wer die besten Ansprechpersonen für die jeweilige Aufgaben sind. Dies ist vor allem in einer vernetzten Welt notwendig, auch weil nicht alle Komponenten ständig aktiv bearbeitet werden und daher nur fall- bzw. phasenweise betreut werden brauchen. Dies kann sogar automationsunterstützt erfolgen. So wird durch die Applikation automatisch eine Nachricht an die im Adressbuch getaggte Person verschickt - mit Angabe der Aufgabe und zusammenhängenden Daten. Durch dieses Adressbuch können die Teilnehmer viel leichter Kontakt miteinander aufnehmen.
27. Das Unternehmen ist bereits gut aufgestellt. Allerdings könnte man noch ein paar Aspekte optimieren. Durch die Rekrutierung weiterer Key Partner und die Präsentation des Unternehmens auf Messen und innerhalb universitärer und beruflich orientierter Schulen kann das Unternehmen einen weiteren Kundenkreis ansprechen und so neue Kundengruppen generieren. Hier sollte das Unternehmen kulturelle und religiöse Spezifika der einzelnen Länder achten und diese im Bereich des Marketing und Kundenkontaktes berücksichtigen. Bereits vorhandene Kunden werden jährlich für ihre Treue und ihr Vertrauen durch ein Event des Unternehmens belohnt. Die Aktivität in sozialen Netzwerken ist ein Muss. Hierfür entstehen

lediglich Kosten für den Einsatz und die Suche neuer geeigneter Mitarbeiter. Diese Aspekte könnten aber insgesamt zu einer Gewinnsteigerung führen, sodass das Unternehmen verstärkt den Fokus auf Punkte wie Nachhaltigkeit und Sponsoring werfen kann.
28. Ich finde der Aspekt der Qualitätssicherung wurde in diesem Modell übersehen bzw. ist es nicht klar heraus zu sehen Ist meiner Meinung nach einer der wichtigsten Stellen in einem Unternehmen. Vom Partner (welche Ressourcen auch immer zur Verfügung gestellt werden) zum Partner (welche Ressourcen man auch immer den Kunden zur Verfügung stellt). Ich muss in allen Lagen die Versorgungssicherheit feststellen können! Qualität ist, wenn der Kunde immer wieder kehrt und nicht das Produkt.
29. In order to improve recognition of the website and the brand awareness one could widen its product or service line in web portals or in the internet by creating video forums or extending its availability thorough new sites like ted or youtube. The company create a wider brand awareness and loyalty through outsourcing of its business modells as well. but what does it actually mean? Well by giving the visitors/customers of the website the chance to give their ideas and cooperation possibilities the website can improve of its business modell ideas.On the other hand one can cooperate by interactive communication in order to solve the business problems.
30. Component: Value Propositions Idea: Webinar for consulting on demand addressing the recent developments in Business Model Innovation

Appendix III Abstract (German)

In Anbetracht des höheren Konkurrenzdrucks, steigender Kundenwünsche und der raschen technologischen Entwicklung werden Unternehmen zunehmend vor größere Herausforderungen gestellt, um sich einen Wettbewerbsvorteil zu verschaffen oder den bestehenden aufrecht zu erhalten. Es steht außer Frage, dass unter den Bedingungen der dynamischen Umwelt und der hohen Unsicherheit bezüglich der zukünftigen Wirtschaftlichkeit Innovationen eine wichtige Rolle spielen. In den letzten Jahren haben dabei Geschäftsmodellinnovationen zunehmend an Bedeutung gewonnen, da sie u.a. die Aspekte Kundennutzen, Finanzen, bedeutende Ressourcen, zentrale Unternehmensprozesse und Absatzkanäle in den Mittelpunkt rücken und hier Neurungen vornehmen. Es hat sich nämlich erwiesen, dass selbst technologisch innovativ ausgestellte Unternehmen erst dann erfolgreich sind, wenn sie ein passendes und stimmiges Geschäftsmodell aufweisen. Innovationen können unternehmensintern oder extern angestoßen werden. Durch den Paradigmenwechsel, nämlich der verstärkten Kundeneinbindung in Unternehmensprozesse, sind externe Quellen zunehmend wichtiger für den Innovationsprozess geworden. Kunden wissen am besten, welche Bedürfnisse sie haben und können Unternehmen somit im Innovationsprozess unterstützen. Wenn es um Problemlösungen geht, können Unternehmen aber nicht nur auf ihre Kunden, sondern allgemein auf die Masse zurückgreifen. Dieses Konzept, Fragestellungen, die unternehmensintern nicht gelöst werden können, an die Masse zu delegieren, hat sich als Crowdsourcing etabliert. Es stellt sich dabei die Frage, ob Crowdsourcing sich auch bei komplexen Fragestellungen, insbesondere die einer Geschäftsmodellinnovation, als nützlich erweisen kann. Eine Studie hat neulich gezeigt, dass Crowdsourcing durchaus einen Nutzen für die Ideengenerierung im Rahmen der Geschäftsmodellinnovation hat. Das Ziel dieser Arbeit ist es, an diesem Ergebnis anzuknüpfen und den Nutzen von Crowdsourcing für eine Geschäftsmodellinnovation in einem anderen Umfeld zu untersuchen. Die vorliegende Studie beschäftigt sich damit, im Rahmen eines Ideenwettbewerbs Ideen zur Geschäftsmodellinnovation eines internetbasierten Startups zu generieren und auszuwerten. Die Ergebnisse zeigen, dass Crowdsourcing einen Stellenwert für den Prozess der Geschäftsmodellinnovation eines Unternehmens hat und daher strategisch im kontinuierlichen Innovationsprozess Verwendung finden sollte. Im theoretischen Teil der Arbeit werden zur Bildung des Hintergrundwissens die Konzepte der Geschäftsmodellinnovation und Crowdsourcing ausführlich diskutiert.

Appendix IV Abstract (English)

In light of the reinforced competition, rising customer demands, and fast technological development, companies are increasingly challenged to gain or sustain their competitive advantage. Without any doubt, under the conditions of dynamic environment and high uncertainty regarding future profitability innovations play a pivotal role. In the past years, especially innovations of business models have gained prominence as they focus, inter alia, on customer value propositions, revenue model, key resources, key processes, and distribution channels in order to innovate them. In fact, it proved necessary for companies to have an appropriate and coherent business model even if they are technological leaders. Innovations may be driven by internal and external factors. Due to the recent paradigm shift in corporate world, customers are being increasingly integrated into organisational processes, which emphasises the role of external sources for corporate processes. Customers' input is crucial as they know their needs best such that they can support companies in the innovation process. However, speaking about problem-solving, customers are not the only valuable source but the crowd in general. The concept to delegate a problem to the crowd that cannot be solved internally has become known as crowdsourcing. Crowdsourcing draws on the collective intelligence of the crowd which may also be useful for complex tasks, such as business model innovation. A recent study showed that crowdsourcing may be beneficial for a business model innovation. The present thesis pursues to continue research on the use of crowdsourcing for a business model innovation in a different environment. In particular, the empirical study sheds light on the crowd-based idea generation process within a business model innovation of an online start-up. The results show that crowdsourcing may indeed provide value for a business model innovation, which is why it should be strategically implemented for a continuous innovation process. In the theoretical part of the thesis, the concepts of business model innovation and crowdsourcing are introduced and discussed in detail.

Appendix V CV

Personal Details

Anna Lvovskaia
Date of birth April 27 th 1989
Place of birth Moscow

Education

October 2012 - present	Studies of International Business Administration MSc , University of Vienna, Major: Innovation & Technology Management
August 2013- December 2013	Exchange semester at Copenhagen Business School (ERASMUS- scholarship)
October 2011 – July 2015	Studies of Nutritional Sciences BSc , University of Vienna
April 2009 – April 2011	Studies of Business Administration BSc at the University of Cologne, Majors: Human Resource Management, Economic Psychology
October 2008- February 2009	International Studies of Shipping and Chartering, University of Applied Sciences Bremen
June 2008	High School Graduation

Work experience

April 2014- present	Junior Business Model Analyst at Business Model Gallery
July + December 2013	Internship at SIPCAN GmbH
July- August 2013	Project assistant at BBF GmbH (IT- services & products) Data research for various economic indicators, data base revision
May 2011- July 2011	Internship at Uniklinik Köln (university hospital) Business unit HR & Organization
August 2010 – November 2010	Internship at Kienbaum Executive Consultants GmbH

April 2009- April 2010	Student assistant for reception and organization of conferences at Oppenhoff & Partner
January 2009 – March 2009	Internship at InWent gGmbH – International Education and Development
Skills	
Languages	Russian (native language) German (second native language) English (fluent, IELTS 2012: 7.0) Spanish (intermediate, DELE Nivel B2 2009) Latin proficiency certificate
IT	Microsoft Office Package (Word, Excel, PowerPoint). Basic knowledge of SPSS and WordPress, Good knowledge of email and internet
Additional activities	Participation in the Regional Academy on the United Nations 2014/15 Project leader Sponsors for CBS Students during University Election 2013 Membership in the student marketing initiative MTP Membership in the Association of Nutritionists of Austria (VEÖ) Tutor for freshmen of Nutritional Sciences (winter semester 2012)