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**Title: “Business Models in the Context of
Educational Online Games“**

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Management Summary

Although more than a quarter of new business formations are social entrepreneurial, social entrepreneurs in general and educational game developers as specific social entrepreneurs have tremendous difficulties to receive funding from traditional channels. Crowdfunding, a recently popular phenomenon on the internet, proved to be very suitable both for social entrepreneurs and for gaming projects alike. The business model generally is a source of competitive advantage and may also play a crucial role for the initial crowdfunding. The problem owner of this research developed an educational game about sustainability that is to be commercialized. Thus, this research seeks to answer the research question: ***What is a suitable BM for the educational online game MoRally to get crowdfunded and to match the social entrepreneurial goals of the problem owner?*** Social entrepreneurship is an innovative initiative with a social object; the business model is an organization's logic to create, deliver and capture value; crowdfunding is a collective cooperation of non-professionals to financially support a project; educational games combine pedagogic content with video games.

To answer the research question, this study first identified success factors and evaluation criteria from the fields of business models, social entrepreneurship, and online games and then developed a preliminary business model for the educational game of the problem owner along these identified factors. A new business model and evaluation framework was developed that considers the alignment to the founder's goals and the crowdfunding suitability. A questionnaire with items for the evaluation of the created business model was filled in by 15 respondents. After the identification of weaknesses, refinements of the business model were formulated. Six respondents assessed the refined business model by using the same questionnaire.

The preliminary business model included the combination of an online “board” game with a table-top board game, revenues from in-game advertising from corporations, and a donation mechanism. The preliminary business model revealed weaknesses because there was little lock-in for customers and the profitability was doubted. The second evaluation of a refined business model showed that by opening the technological interface and thus the platform for outside educational game developers, much more lock-in for partners could be created and the potential profitability was assessed much more positively.

The main managerial implication is that the problem owner should use this business model to align his financial, environmental and social goals with the project's suitability for crowdfunding. The suggested extension of the own network by a network-based business model that works closely with partners such as donation platforms and corporate sponsors was assessed as very valuable for a crowdfunding campaign and to create social impact. The development of a table-top board game first and of an online game then substantially lowers risks and allows to partly subsidize the free-to-play online game by selling the board game.

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Abbreviations:

BM =Business model

BMs = Business models

CSR = Corporate Social Responsibility

1 Introduction

Companies are constantly innovating to keep competitive and to improve margins. Whereas the opportunities for product and process innovations get fewer and the exploitation more costly, more companies invest heavily in the search for more innovative business models (BM) (Amit & Zott, 2012), namely for a new “rationale of how an organization creates, delivers and captures value” (Osterwalder & Pigneur, 2010, p. 20).

BM design is especially crucial for entrepreneurs (Faltin & Ripsas, 2010). Rapid changes in technology and market force startups to frequently change their BMs (de Reuver, Bouwman, & MacInnes, 2009). Although the creation of an innovative BM is the main task of the entrepreneur, the BM received little attention in entrepreneurship (Faltin & Ripsas, 2010).

Social entrepreneurship is booming recently, more than a quarter of new business formations are social entrepreneurial. Social entrepreneurship is an innovative initiative with a social objective and whose primary goal is not profit-maximization (Austin, Stevenson, & Wei-Skillern, 2006). This way, BM frameworks for social entrepreneurs should take into consideration the explicit social mission. This social mission may be composed of positive externalities in six main domains: welfare and health services, education and training, economic development, disaster relief and international aid, social justice and political change, and environmental planning and management (Huybrechts & Nicholls, 2012).

Almost any video games with educational aspects can be named game-based learning. Such educational games include both commercial games and educational content with multimedia-based visualization. Most educational game initiatives are social entrepreneurial because their social

mission is to foster some educational mission (Moreno-Ger, Burgos, Martínez-Ortiz, Sierra, & Fernández-Manjón, 2008).

Social entrepreneurs in general have tremendous difficulties to receive funding from traditional channels. Venture capitalists who usually want to maximize profits have different goals than social entrepreneurs. Hence, social entrepreneurs often have to seek funding from non-traditional channels (Austin, Stevenson, & Wei-Skillern, 2006; Weerawardena & Mort, 2006).

In particular educational games hardly have access to funding from traditional channels. This problem is partly the consequence of lost investments in the education gaming markets. This inconvenience even slows down the growth of the field of educational games. Additionally, educational games' development costs are high which makes the funding a bottleneck for educational game developers (Klopfer, Osterweil, & Salen, 2009).

Crowdfunding is a recently popular means of financing that has proven to be very suitable for social entrepreneurs (Lambert & Schwienbacher, 2010). Crowdsupporting is a collective cooperation of non-professionals to financially support a project in form of donation or for non-financial rewards or voting rights (Kaltenbeck, 2011; Lambert & Schwienbacher, 2010; Schwienbacher & Larralde, 2010; Wojciechowski, 2009). Interestingly, non-profit organizations tend to raise more money via crowdfunding than for-profit organizations. Reasons may be the stronger focus on quality rather than profits (Lambert & Schwienbacher, 2010).

Crowdfunding is especially attractive for game developers (Gabrillo, 2012). Video games are particularly successful in obtaining crowdfunding (Kühl, 2012; Mollick, 2012). This popularity recently resulted in the creation of crowdfunding platforms specifically for gaming projects (Curtis;

2012). Despite the popularity and some extremely successful crowdfunding campaigns for games, about 57 % of the projects do not meet their target funding goal (Nelson, 2012). In total, only slightly less than half of all crowdfunding campaigns obtain crowdfunding (Mollick, 2012).

In consequence, crowdfunding is an interesting means of funding for educational game projects. These projects combine gaming with social entrepreneurial aspects of education and consequently meet factors raising the chances for a successful crowdfunding campaign. Since educational game designers often lack funding from traditional channels, crowdfunding can diminish the funding problem.

A lot of research in BMs was conducted in the past, over 1177 papers addressing the BM were published in peer-reviewed academic journals since 1995 (Zott, Amit, & Massa, 2010). The applicability of BM concepts, especially in the field of internet business, is increasingly gaining interest in management sciences (Lüdeke-Freund, 2009).

However, little literature covers BMs in the social entrepreneurial context or explicitly considers sustainability aspects (Lüdeke-Freund, 2009; Stubbs & Cocklin, 2008; Yunus, Moingeon, & Lehmann-Ortega, 2010). Whereas the inclusion of sustainability aspects within the application of the BM concept in social entrepreneurial context is obvious, the consideration of the funding of a “social” BM is of equal importance, yet totally neglected. A consideration of crowdfunding, a recently popular funding channel, in a BM framework is both for the creation and evaluation of social BMs worthwhile.

Educational game developers have to meet requirements for the adoption of the game and the competition in the market, the funding, and for the intended social mission. Educational games

already have more adoption barriers to overcome than conventional games (Klopfer et al., 2009). Additionally, funding of educational games via traditional channels is difficult. Thus, educational game developers face a challenging task to create a BM that allows successful crowdfunding, successful adoption of the game in the market and the fulfillment of the intended social mission. Since trade-offs may exist between these multiple goals, a cautious balance is required.

The BM is a source of competitive advantage (Zott et al., 2010) and also plays a crucial role for the initial crowdfunding. A sound BM that is suitable both for crowdfunding and the competition in the market and that considers the social and environmental benefits of social entrepreneurs, can free designers of educational games from a potential conflict of interest with venture capitalists, can create a lot of publicity and an initial player base from the very beginning, and facilitate the survival in the competitive gaming market as a result.

1.1 Research Goal

Although the online gaming market is flourishing, it is difficult to fund educational games via traditional channels and successfully commercialize them afterward (Klopfer et al., 2009). Crowdfunding is suitable for social entrepreneurs in general and gaming projects in particular (Lehner, 2012). BMs can be a source of competitive advantage (Amit & Zott, 2001) and may also play a crucial role for crowdfunding. However, the BM and especially its evaluation are little researched within the social entrepreneurial context and with reference to crowdfunding.

This research follows Design Research and the problem owner is the author of this thesis. The author created the educational board game “MoRally” about sustainability that is not commercialized at all yet. The problem owner wants to commercialize “MoRally” as an online game. Since this game project has not received funding yet, the problem owner needs a BM for this

social entrepreneurial project that enables the project to obtain crowdfunding and that matches his social entrepreneurial goals alike.

This thesis applies design research since a business model shall be designed to achieve a desired future state, namely a suitable business model for the successful crowdfunding and commercialization of the potential educational online game “MoRally”.

In Design research, a new system is developed that does not exist yet (Romme, 2003). Design Research is based on a pragmatic approach in order to develop a specific solution for a specific problem in a specific context (Van Aken, 2005). Design Research contrasts with science which aims at creating knowledge about what already exists (Romme, 2003).

Consequently, it is a suitable approach for this thesis, because the specific solution is a specific BM, and the specific problem is the difficulty in funding and commercializing the educational game “MoRally”, and the context are these times where crowdfunding became a popular means for funding of social entrepreneurs.

Thus, this research shall reveal a sound BM for the commercialization of an educational online game. The BM shall be suitable for crowdfunding and fit the founder's social, environmental and financial goals. For the evaluation of the BM to be designed, a BM evaluation framework shall be created to integrate the social entrepreneur's goals and the crowdfunding suitability.

1.2 Central question

Hence, this master thesis investigates the following central question:

What is a suitable BM for the educational online game MoRally to get crowdfunded and to match the social entrepreneurial goals of the problem owner?

Social entrepreneurial goals include social, environmental and financial goals alike that are linked to the successful commercialization and hence to creating and capturing value.

1.3 Research questions

The central question can be decomposed into several research questions. The central question can then be answered in a structured approach by investigating these research questions in detail:

- 1 What are the general elements and evaluation criteria of business models? (chapter 2, theoretical framework)

First, the thesis will start with an analysis of the theory on topics relevant to the design of BMs for this research. A literature review on BMs, on their evaluation and their respective success factors shall be given to prepare the development of an own BM evaluation framework.

- 2 What are the elements and evaluation criteria of social business models? (chapter 2, theoretical framework)

Second, a social entrepreneurial BM (evaluation) framework shall be developed. Therefore, BM evaluation criteria and frameworks are discussed critically from a social entrepreneurial perspective. This discussion will reveal certain requirements of a social entrepreneurial BM (evaluation) framework. Then, a social entrepreneurial BM (evaluation) framework shall be suggested to fill the gap of existing frameworks.

3 What are the elements and BM evaluation criteria of crowdfunding campaigns?

Third, the concept of crowdfunding and crowdsupporting in particular will be explained. Basing on crowdfunding literature, BM evaluation factors for crowdfunding shall be formulated to prepare a concrete questionnaire for the evaluation of the suggested BM.

4 What are the main existing BMs for (educational) online games?

Fourth, an introduction into educational games and online games business models will be given. This part will lay the foundation of the design of the BM for the problem owner by formulating BM design recommendations from the online gaming market perspective.

5 How can a BM for MoRally be shaped for a successful crowdfunding campaign and the alignment of the founder's social entrepreneurial goals?

Fifth, a concrete BM for the problem owner shall be created and tested. This includes the design of a BM according to the developed social entrepreneurial framework and identified relevant success and evaluation factors, and the assessment of the BM by experts. On the basis of the first evaluation phase, refinements of the concrete BM for the problem owner shall be suggested and evaluated by experts. A comparison of the first and second evaluation shall reveal further insights about the BM adequacy. On this basis, recommendations for the BM for the problem owner will be given that consider social entrepreneurial and crowdfunding aspects. Then, two iterations of the regulative cycle with analysis, design/implementation of a solution, and the evaluation of the solution will be completed.

1.4 Relevance of the Research

1.4.1 Scientific Relevance

The academic relevance of this research is the suggestion of a new BM framework for the creation and evaluation of BMs in the social entrepreneurial context. It shall extend current BM frameworks by considering the social, environmental and financial goals of founders and the match for crowdfunding. Furthermore, an evaluation framework and questionnaire for a social entrepreneurial BM are proposed.

1.4.2 Practical Relevance

The practical relevance for this research is to help the problem owner, namely the author of this research in particular and social entrepreneurs and especially developers of educational games to find suitable BMs. Moreover, social entrepreneurs, who wish to evaluate their BMs along financial, social, environmental indicators, along crowdfunding success factors and the fit to their goals, obtain a BM (evaluation) framework that suits their purposes.

2 Theoretical Framework

2.1 What are the elements and evaluation criteria of business models?

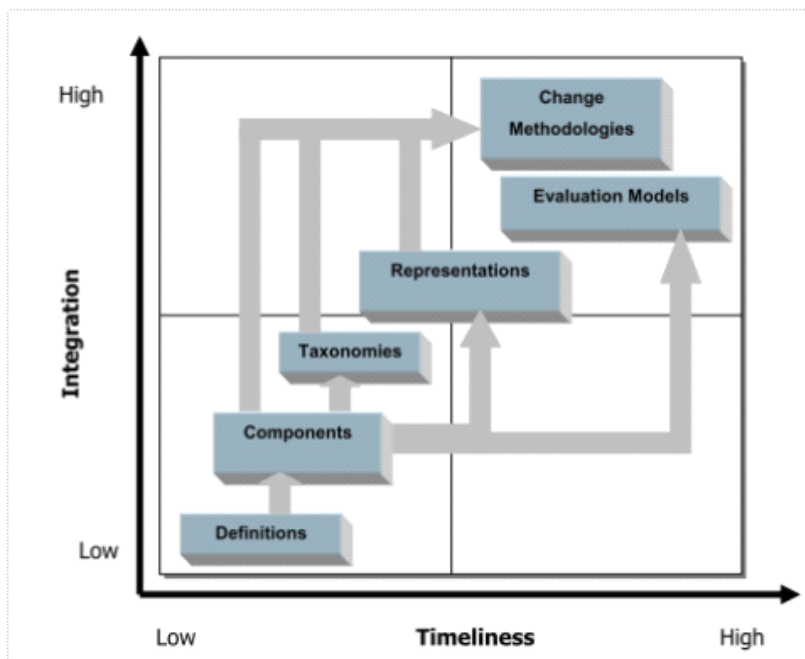
A BM is defined as the description of “the rationale of how an organization creates, delivers and captures value” (Osterwalder & Pigneur, 2010). The BM functions as a link between strategy, business processes, and information systems (Osterwalder, Lagha, & Pigneur, 2002).

The BM concept has diverse old theoretical underpinnings: it draws on the value chain concept (Porter & Millar, 1985), transaction cost economics, strategic positioning (Porter, 1980), on internal competencies and on the resource-based view (RBV) (J. B. Barney, 2001) which bases on Schumpeter's theory of innovation. The value chain analysis investigates the value contribution of all steps in the value chain on a firm level (Amit & Zott, 2001). Since the value chain framework rather fits the analysis of manufacturing organizations the concept was further developed and complemented by the value shop and network by Stabell and Fjeldstad to be suitable for other type of firms (1998). The BM concept also refers to transaction cost economics. Transaction efficiencies result from uncertainty, bounded rationality, complexity, and asymmetric information (Amit & Zott, 2001). Furthermore, the BM concept bases on transaction cost economics where value is created by transaction efficiency (Morris, Schindehutte, & Allen, 2005). Sustained competitive advantage is mostly created by strategic positioning rather than operational effectiveness because operational effectiveness can be easily copied by competitors. The value creation then stems from doing things differently than competitors (Porter 2001). The resource-based view (RBV) considers the company as a bundle of resources to be integrated for the creation of value for the customers (Al-Debei & Avison, 2010). The RBV explains the link between resources that are valuable, rare, imperfectly imitable, and not substitutable and sustained competitive advantage (J. Barney, 1991). The BM also bases on Schumpeterian theory of innovation, according to which unique combinations of resources result in innovations and create value (Amit & Zott, 2001). For the value creation network, the BM concept bases on the strategic network theory (Gulati, Nohria, & Zaheer, 2000) that deals for instance with strategic network creation, its configuration (Burt, 1992) and the link with trust and information (Ahuja, 2000).

Via exploratory research, a framework was developed to divide the BM research into the following research sub-domains: “definitions”, “components”, “taxonomies”, “representations”, “change

methodologies”, and “evaluation models”. Research into BM definitions concerns defining the aim, scope, and basic elements of a BM, and investigating its relationships with other business concepts. The research about BM components copes with further the further decomposition of the BM concept into its fundamental constructs. Research about BM taxonomies analyzes possible categorizations of BMs to create typologies based on various criteria (Pateli & Giaglis, 2003). With regard to the temporal dimension, the BM refers to a specific moment in time (Osterwalder, Pigneur, & Tucci, 2005). Therefore, change models add the intertemporal dimension to BMs to model the pattern of the change of BMs over time (Linder & Cantrell, 2000). Research in the BM sub-domains definitions, components, and taxonomies is quite common whereas in the sub-domains representations, change methodologies, and evaluation models relatively little research has been conducted. These research sub-domains are sorted in a two-dimensional graph with “Integration” as the y-axis and “Timeliness” as the x-axis. Integration is the dependence of the respective research sub-domain upon other research sub-domains. Timeliness represents how immature the sub-domain is and to which degree further investigation may be necessary (Pateli & Giaglis, 2003).

Figure 1: “A Framework for Structuring BM Research Sub-domains”



Source: (Pateli & Giaglis, 2003)

As one can see in the figure 1, change methodologies, which deal with guidelines for changing BMs, and evaluation models, which apply criteria for judging BMs' features, are the sub-domains that are mostly integrated and thus grounded in other sub-domains (Pateli & Giaglis, 2003). Furthermore, change methodologies and evaluation models are the timeliest sub-domains, meaning that they are the least mature of the mentioned BM research sub-domains.

In order to work on evaluation models, one should define first BMs and second their components because evaluation models are integrated in the former.

2.1.1 Business Model Definitions

The BM is defined as the description of “the rationale of how an organization creates, delivers and captures value” (Osterwalder & Pigneur, 2010, p. 14). Timmers (1998, p. 4) defines the BM more detailed as “An architecture for the product, service and information flows, including a description of the various business actors and their roles; and A description of the potential benefits for the various business actors and their roles; and A description of the sources of revenues”. The BM alone does not explain yet how it is implemented (Timmers, 1998). Similarly, the BM was also defined as “a description of the roles and relationships among a firm’s consumers, customers, allies and suppliers that identifies the major flows of product, information, and money, and the major benefits to participants” (Weill & Vitale, 2001). However, there is “No generally accepted definition of the term “business model”” (Morris et al., 2005), at least partly due to the variety of perspectives in the BM research. This research bases and frequently uses the above mentioned definition of the BM as “the rationale of how an organization creates, delivers and captures value” (Osterwalder & Pigneur, 2010, p. 14) because it is short and rather open and thus better suits the purpose of extending the BM framework.

The deviations in the BM definitions reflect two major and different understandings of the BM (Pateli & Giaglis, 2003). According to some researchers the BM is simply a business concept for the business logic of a firm (Timmers, 1998; Linder & Cantrell, 2000; Petrovic, Kittl, & Teksten, 2001) whereas other researchers emphasize the BM's role as a link between strategy, business processes, and information systems to more easily align strategy to processes etc. (Al-Debei & Avison, 2010) (Nilsson, Tolis, & Nellborn, 1999; Osterwalder & Pigneur, 2002). Even though the researchers who adhere to the understanding of the BM as an intermediary concept admit that the concepts of the BM and strategy are related, these researchers view these concepts as representing different levels of information for different aims. According to the first described perspective, strategy, business processes and information systems are included in the BM concept already (Pateli & Giaglis, 2003). According to the second point of view, these concepts are not included in the BM concept but the BM is linking them.

The understanding that the BM links strategy, business processes, and information systems is more appropriate for an entrepreneurial context. The entrepreneur is facing a lot of uncertainties, may neither have deep knowledge about the market nor about the necessary strategy, business processes, and information systems for the probing business idea. Nonetheless, a BM framework may provide an entrepreneur with a powerful tool to communicate the initial business idea and model towards, for instance, potential co-founders or investors. Thus, for an entrepreneur a BM framework that bases on the understanding of the BM as a linking concept between strategy, business processes, and information systems is more appropriate because the details of the latter can be added in a later step. The other understanding, according to which the BM is a business concept for the business logic of a firm, would not allow an entrepreneur with little knowledge about business processes and information systems to create a full BM. The reason is that a BM is understood as an entity consisting out of strongly interconnected components so that the BM “only makes sense as a

whole” (Osterwalder & Pigneur, 2010, p. 148).

2.1.2 Business Model Components

BM's may be composed of value, resource, production, customer relations, revenue, capital, and market models (Petrovic et al., 2001). There are three perspectives on BM's granularity, namely the economic, operational, and strategic one (Morris et al., 2005).

These three levels of granularity comprise different decision variables. However, they can be hierarchically ordered such that the economic one is least and the strategic one is most comprehensive. The economic model as the most rudimentary level deals with profit generation and includes decision variables such as revenue sources, pricing methodologies, cost structures, margins and expected volumes (Morris et al., 2005).

There is no consensus over the key components of a BM, but the ones most often mentioned are the firm's value proposition, economic model, customer relationship, partner network, internal infrastructure, and target markets (Morris et al., 2005). For instance, the often cited general classification for BM elements which is often applied in practice is the BM canvas with its nine building blocks that include the above mentioned components (Osterwalder et al., 2005). It is composed of the value proposition, target customer, distribution channel, customer relationship, value configuration, capabilities, partnerships, cost model, and revenue model (Osterwalder et al., 2005). It is debated whether aspects related to competition and the implementation of a BM are part of the BM itself. Some researchers disagree (Osterwalder et al., 2005); in contrast other researchers consider the competition aspect in the BM concept (Morris et al., 2005). The capital and market model (Petrovic et al., 2001) are not included in most researches and also not in the above mentioned BM definitions. The capital model describes the logic of financial sourcing to create a

debt and equity structure (Petrovic et al., 2001). However, the BM may play a crucial role for the funding of social entrepreneurs that have difficulty in receiving funding from traditional channels and are therefore more dependent on non-traditional channels such as crowdfunding. Thus, funding aspects should be somehow considered in BMs for social entrepreneurs. Therefore, the funding model does not necessarily have to be a BM component, especially the initial funding via crowdfunding is rather not a core part of the “the rationale of how an organization creates, delivers and captures value” (Osterwalder & Pigneur, 2010, p. 14). However, the funding, and especially the initial crowdfunding for social entrepreneurs can be part of the wider BM framework and part of an evaluation model.

In this research the elements of the BM canvas are used (Osterwalder & Pigneur, 2010). These elements coincide with the BM elements that are most often mentioned and are also well-known among practitioners. This facilitates the communication of the BM towards relevant stakeholders. Furthermore, this ontology fits the chosen understanding of the BM concept as an interceding framework between business strategy, processes and ICT.

By discussing various BM frameworks, the different BM components are further described in the following.

2.1.3 Business Model Frameworks

In general, “An ontology is a framework that provides a shared and common understanding of a domain that can be communicated between people and heterogeneous and widely spread application systems (...), just as are the goals of Business Models” (Osterwalder, Lagha, et al., 2002, p. 2). Such an ontology is a prerequisite to accomplish the beneficial effects of the use of BMs (Osterwalder, Lagha, et al., 2002).

Within BM research the stream on e-business models received most of the attention due to the rise of business over the internet (Zott et al., 2010) (Osterwalder, Lagha, et al., 2002) E-business models help to communicate and share the understanding of an e-business, to determine adequate measures for the implementation, and simulate e-businesses for risk-free learning. The framework of Osterwalder et al. (2002) consists of the following four main categories product innovation, customer relationship, infrastructure management, and financial aspects. These broad categories are divided into further, more granular categories (Osterwalder, Lagha, et al., 2002).

Product innovation as first pillar of the framework consists of the value proposition, the target customer and the capabilities. Differentiation via the value proposition is possible via new and complementary offerings, lower price, or premium service. The target customer should be specified at least along B2B/B2C, geographical areas and product segments. Capabilities are necessary in order to deliver the value to customers (Osterwalder, Lagha, et al., 2002).

Customer relationship capital as the second pillar of the framework consists of information, feel and serve, and trust and loyalty. Customer information enables firms to improve products/services to realize higher customer satisfaction which in turn leads to trust and loyalty. Feel and serve is about the channel strategy to be used to deliver value to the customers (Osterwalder, Lagha, et al., 2002). A good channel strategy makes the right decisions for the adequate quantities of the suitable product, available at the right place and well-timed to the right target group (Pitt, Berthon, & Berthon, 1999). Trust is very important in virtual environments when partners who haven't met personally want to do business together (Osterwalder, Lagha, et al., 2002). Trust can be established in such environments via virtual communities (Hagel & Armstrong, 1997), performance history, and an explicit private policy (Friedman, Khan Jr, & Howe, 2000).

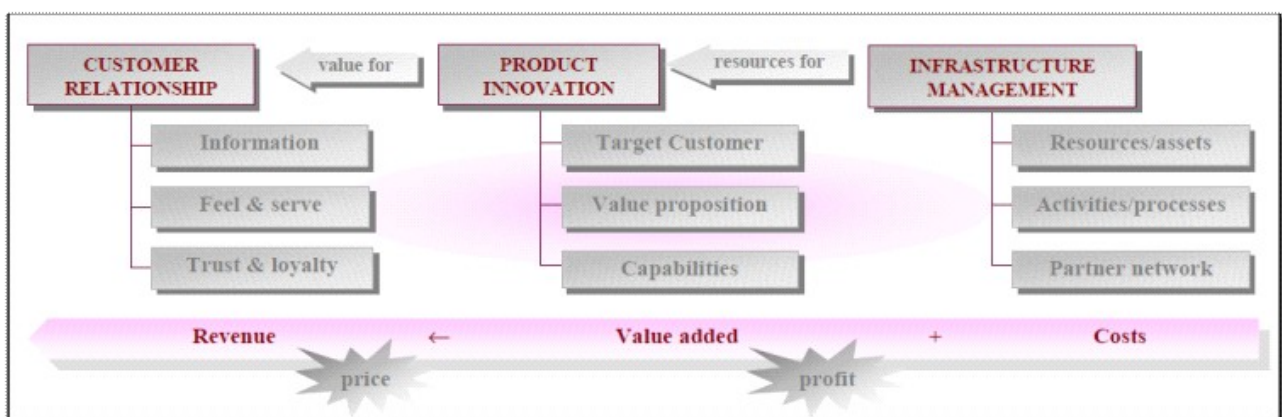
The third pillar of the framework of Osterwalder et al. (2002) is the infrastructure management. It comprises activity configuration, resources and assets, and the organization's partner network. The activity configuration is the configuration of inside and outside processes to create and deliver value. It includes the traditional value chain framework (Porter & Millar, 1985), and its more recent extension by the value shop (service provider) and value network (broker, intermediary) (Stabell & Fjeldstad, 1998). Partner network describes which activities are performed by which partner of an organization (Osterwalder, Lagha, et al., 2002). The partner network can be investigated by applying the frameworks developed within the network perspective research within BM science. Thus, one can refer to structural holes (Ronald S. Burt, 1992), density of networks (Ahuja, 2000), positive feedback (Shapiro & Varian, 1999), etc. to deepen the network perspective with regard to the partner network. Resources and assets can be divided into intangible (IP rights, brands), tangible (equipment, cash), and human assets (employees). Basing on the assumption of stable differences in key resources across firms, the resource-based view explains the link between firm resources and sustained competitive advantage. Key resources contributing to sustained competitive advantage have four major properties: they are valuable, rare, imperfectly imitable, and cannot easily be substituted by equivalent resources (J. Barney, 1991).

The fourth and last pillar of the framework of Osterwalder et al. (2002) is the financial aspect that is determined by all other pillars (Osterwalder, Lagha, et al., 2002). It decomposes into the revenue model and the cost structure which together build the profit structure. The cost structure diminishes the profit structure, which in turn maximizes the revenue model. The revenue model increases the profit structure which then minimizes the cost structure. The revenue model describes a firm's ability to reap financial resources from creating and delivering value to its customers (Osterwalder, Lagha, et al., 2002). The cost structure lists all costs incurred along the value creation

of a firm (Osterwalder, Lagha, et al., 2002). Especially due to the opportunities of ICT and the internet, a firm can realize substantial cost savings by focusing on its core competencies. The profit model is the difference between all revenues and all costs and can be considered as the monetary summary of the e-business model ontology (Osterwalder, Lagha, et al., 2002). Product innovation and customer relationship enhance revenue maximization. In contrast, infrastructure management reduces the costs.

This framework is illustrated in the following figure:

Figure 2: “e-Business Model Framework”



Source: (Lagha, Osterwalder, & Pigneur, 2001).

Apart from these frameworks for embedding the BM in the wider context of the respective organization, a framework can be used to characterize a BM while taking into account the entrepreneur's needs. Three levels with increasing specificity serve different purposes for the BM. At each level 6 basic decision areas guide the BM design/characterization for consistency. Such a framework helps to reduce complexity by encouraging one to focus on the level of specificity that fits the user's purpose. Likewise, the search for or judgment of internal consistency is also facilitated by the introduction of increasingly specific levels. The foundation levels deal with the most basic components that are also based on the theoretical underpinnings mentioned earlier. This level includes the value proposition including the product/service mix, the firm's role in delivery,

and the way of delivery to customers (Morris et al., 2005).

By describing the entrepreneur's time, scope and size ambitions, the user of this framework communicates the ultimate goal for the venture type. Lifestyle firms and high-growth companies go along with different requirements for the above mentioned decision-areas (Morris et al., 2005). Thus, instead of simply criticizing a firm's BM for mediocre profit prospects, the consideration of the entrepreneur's lifestyle venture preference may lead to a positive evaluation of the BM. In this sense, this framework fits the entrepreneur's needs well and differs from most other BM frameworks.

Hence, this framework is in accordance with the theory of effectuation that proposes that the entrepreneur conjectures over the future, identifies what can be done, and develops goals over time (Morris et al., 2005; Sarasvathy, 2001). The BM design approach of an entrepreneur resembles the iterative design research cycle. The proposed BM framework allows the entrepreneur to fill in the rudimentary level first and then to increase the level of specificity (Morris et al., 2005). Nonetheless, the entrepreneur can analyze the first level as a complete unit even if the other levels are still opaque to detect potential inconsistencies on one level before proceeding with the more granular levels. Another benefit of this approach is that it prevents the entrepreneur from “over-planning” at an early stage. There is empirical evidence that an entrepreneur can plan too much if the planning degree rises above a certain level due to time costs and decreased flexibility (Brinckmann, Grichnik, & Kapsa, 2010). “Over-planning” renders the entrepreneur less flexible to change plans if unforeseen events occur. It is proposed to apply contingent planning to reap the benefits from planning on the one hand but to remain flexible on the other hand (Brinckmann et al., 2010). The different levels of specificity in the discussed framework (Morris et al., 2005) allow a sort of contingency planning for the entrepreneur: new information may reveal an inconsistency

within elements on the most specific level. The required redesign may then only concern the most specific level whereas the other levels remain unchanged with less perceived sunk costs for the entrepreneur.

2.1.4 Business model taxonomies

Research into BM taxonomies deals with classifying business models into categories. The BMs with same common characteristics such as the same pricing policy belong to the same category (Pateli & Giaglis, 2003).

Although the BM research sub-domain “evaluation” is not integrated in BM taxonomies, taxonomies help to analyze, create and communicate BMs (Pateli & Giaglis, 2003). Therefore, a description of various BM taxonomies shall be given to prepare the evaluation section.

The various taxonomy frameworks in the literature differ with regard to the criteria for categorizing the BMs, and to the classified objects, whether they are whole business initiatives that may apply several BMs, or atomic BMs. These sets of criteria are amongst others the revenue and position in value chain, the interaction pattern and value chain integration, the functional integration and degree of innovation, the core activities and price – value balance, the economic control and value integration, and sourcing features. Although this variety shows the heterogeneity with regard to BM taxonomies, most taxonomies include the value integration and refer to e-business (Pateli & Giaglis, 2003).

A high number of classified objects of BMs were identified for e-business models. For e-business models, one can distinguish between the following BM types: e-shop, e-procurement, e-auction, e-mall, third party marketplace, virtual communities, value chain service provider and integrator,

collaboration platforms; or into virtual storefront, marketplace concentrator, information brokers, transaction brokers, electronic clearinghouses, reverse auction, digital product delivery, content provider and on-line service provider (Kao & Goo, 2004). These classifications can help to analyze, design and communicate BMs more effectively. Many (successful) hybrid BMs are found in practice, which combine aspects of different BMs (Linder & Cantrell, 2000).

Quite a different classification of BMs is the distinction between terminating and originating BMs. In terminating BMs more than one service or product are bundled and the provider of the main service or product does not sell the main product to the customer, but rather the provider of the secondary service or product. In an originating BM it works exactly the other way around. Thus, the criterion for this taxonomy is the revenue causality (Gordijn, Akkermans, & Van Vliet, 2001).

One unsystematic BM taxonomy was developed for the analysis and description of BMs along the BM canvas. In this research, this taxonomy will be used because it fits the chosen ontology of the BM canvas. This taxonomy distinguishes between unbundling business models, the long tail, multi-sided platforms, free as a business model, and open business models. In the unbundling BM a firm that originally combines infrastructure management, product innovation, and customer relationships unbundles these activities into three different units to avoid conflicting organizational cultures and negative trade-offs (Osterwalder & Pigneur, 2010). Typical examples for this BM are telecommunication companies such as Deutsche Telekom. The long tail BM was described as targeting numerous less profitable niche customer segments that are profitable in aggregation (Anderson, 2008). The company Lego applies this BM by allowing users to create and order their own Lego designs. Multi-sided platforms originally only serve one customer segment but add further ones that are given access to the original customer base. From simply providing a product or service, the company turns into an intermediary whose platform can generate further revenues.

Video game consoles follow this approach by concentrating on the console itself and linking game developers with players. This way the console developers could create positive feedback by attracting more external game developers to create games which in turn attracts more players. The console is a double-sided platform. Microsoft's Xbox and Sony's play station costly high performing consoles are sold at losses to create lock-in for the targeted heavy gamers. These losses are then subsidized by royalties on external game developers. In contrast, Nintendo's Wii console targets casual gamers, and does not compete on technological performance but differentiates by stressing interactivity and fun. That's why, the Wii console sales already generate profits. Free as a BM provide the basic value proposition for free to basic users but charge a premium from users for a premium value proposition (Osterwalder & Pigneur, 2010). This model differs from the multi-sided platform because a sub-segment of the same main segment subsidizes the non-paying customers. This model is wide-spread in online gaming where non-paying users can play the basic game version for free and the premium players pay for further options or premium service. In the open BM a firm opens its research processes to integrate outside knowledge (Chesbrough, 2003; Osterwalder & Pigneur, 2010). For instance via the platform Innocentive firms can openly describe a problem they may face. Readers can submit a solution proposition and the best adviser gets a reward (Osterwalder & Pigneur, 2010).

2.1.5 Evaluation of Business Models

The domain of BM evaluation models deals with identifying criteria for evaluating the feasibility and profitability of BMs or with benchmarking a BM against alternatives (Pateli & Giaglis, 2003). This research sub-domain can be distinguished in the research into single evaluation criteria and into fully integrated evaluation frameworks.

In general, BMs can be evaluated with different criteria, depending upon the purpose of the evaluation. The four main evaluation purposes are the comparison with competitors, the assessment

of alternative BMs of the same firm, the identification of risks, and the evaluation of an innovative BM concerning feasibility and profitability. However, the “evaluation criteria domain is perhaps the less mature BM research area” (Pateli & Giaglis, 2003, p. 17).

2.1.5.1 Evaluation criteria for Business Models

Some researchers recommend a number of assessment criteria for the evaluation of BMs. In the following, some of these criteria are presented and discussed.

In a multiple case study the value creation potential of online BMs was found to depend largely on four interdependent dimensions, namely efficiency, novelty, lock-in and complementarities. Efficiency consists out of low search costs, a broad selection range, symmetric information, simplicity, speed and scale economies. Novelty comprises new transaction structures, new transactional content and new participants. Additionally, it often entails connecting previously unconnected parties. Lock-in creates value by augmenting switching costs via loyalty programs, dominant design, trust, and customization in order to prevent that customers and strategic partners prefer to cooperate with competitors. Value is driven by complementarities between products and services (vertical vs. horizontal), between online and offline assets, between technologies, and between activities. Amit and Zott (2001) empirically found that the BM describes the main locus of value creation better than more traditional units of analysis such as the firm, the individual transaction, the network, and the industry. These four value creation dimensions also draw on entrepreneurship and strategic management theory. Efficiency is mainly grounded in transaction cost economics theory, complementarities in the resource-based view, lock-in in strategic network theory, and novelty in Schumpeterian innovation theory of value creation by unique combinations (Amit & Zott, 2001). Since these value creation factors explicitly base on strategic management and entrepreneurship theory and are also grounded in empirical case studies of online businesses, these

four value creation factors are very suitable as evaluation criteria for this research and will thus be applied.

Figure 3: Theoretical foundation of the four identified value creation factors

	Efficiency	Complementarities	Lock-in	Novelty
Value chain analysis	Medium	Medium	Low	Medium
Schumpeterian innovation	Low	Low	Low	High
Resource-based view	Low	High	Medium	Medium
Theory of strategic networks	Medium	Medium	High	Medium
Transaction cost economics	High	Low	Medium	Low

Note: Table entries describe the degree to which the identified sources of value in e-business are viewed, directly or indirectly, by different theoretical frameworks in strategic management and entrepreneurship as important for value creation.

Source: (Amit & Zott, 2001)

Further recommendations for e-business models can be grouped into social networking, interaction orientation, customization, and user-added value (Wirtz, Schilke, & Ullrich, 2010, p. 278). Social networking services usually connect friends, or involve the assessment of products and services. Interaction orientation labels a firm's capability to successfully cope with the increasing customer demand for a closer and more authentic relationship between firm and customer. Customization and personalization is the adoption of products or services to customers on a personal, group, or social level. Customization creates value and lock-in alike, as suggested by Amit and Zott (2011). User-added value is exploited by a firm by capturing value from users' content, creativity, and innovation (Wirtz et al., 2010).

Faltin & Ripsas (2010) advise an entrepreneurial BM that requires little capital. A “cheap” entrepreneurial BM contributes to flexibility and time-savings due to independence from investors and reduces risks (Faltin & Ripsas, 2010). This advice is particularly valuable for social entrepreneurs for whom funding is difficult to get and who might be dependent on crowdfunding.

2.1.5.2 Evaluation Frameworks for Business Models

Instead of only researching single evaluation criteria, some researchers created whole evaluation frameworks. In this section, these evaluation frameworks are described and discussed.

The e3value ontology is one of the most tested evaluation frameworks and facilitates the design and evaluation of BMs. It supports the automatic and tool-aided quantitative evaluation by calculating the profitability of a value constellation (Gordijn, Osterwalder, & Pigneur, 2005). The downside of this exact and quantitative evaluation is the little scope of its application: an entrepreneur designing a BM for his future start-up may not know *ex ante* whether the prices he aims to charge for the services or products will match the willingness-to-pay of the customers. This holds especially true when the services or products are very innovative. Then, historical data and statistics of comparable products or services might be lacking. Furthermore, the e3 evaluation framework is very academic and complicated, and in practice BMs will be mainly evaluated by practitioners like investors, entrepreneurs and managers.

Although the e-business framework (Osterwalder, Lagha, et al., 2002) and the related BM canvas (Osterwalder & Pigneur, 2010) are not as explicitly designed for the evaluation as the e3value ontology (Gordijn et al., 2005), they may be suitable for the BM evaluation in this research. Since the BM canvas is very widespread and known in practice it may be very suitable for the communication and evaluation of a BM because the recipients are probably familiar with the canvas. A Likert scale questionnaire to apply a SWOT analysis on top of the canvas was suggested for the evaluation (Osterwalder & Pigneur, 2010). The advantage of this approach is that the evaluation is methodologically simple and hence more suitable for the entrepreneur, and the entrepreneur can detect areas of weaknesses and strengths with regard to the BM elements in the canvas. The latter facilitates the refinement of the BM after the first round of assessments by

experts or stakeholders. For instance, an entrepreneur may exactly get to know that the value proposition is convincing but the partner network is not.

A SWOT analysis contributes to the strategic planning process by identifying the firm's strengths, weaknesses, opportunities and threats (Bernroider, 2002). This technique helps to align the external situation of a firm (threats and opportunities) with its own internal strengths and weaknesses (Hill & Westbrook, 1997). The SWOT analysis is among the most popular empirical techniques in strategic analyses in firms (Bernroider, 2002).

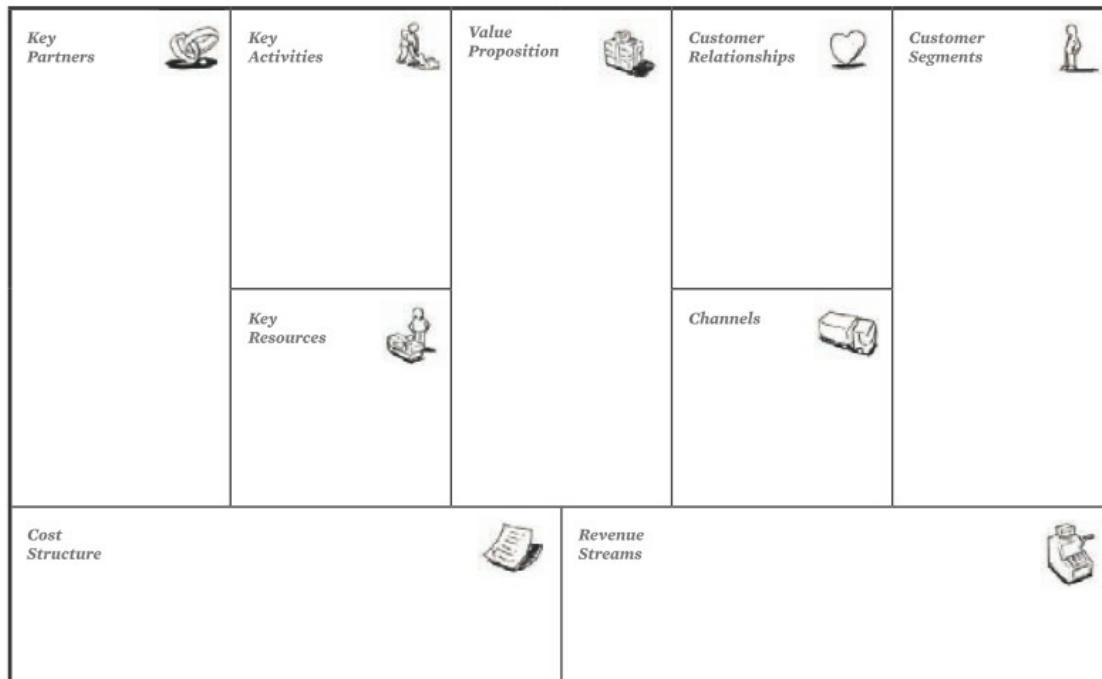
The threats and opportunity items of the suggested SWOT analysis are not useful for this research. It includes almost 100 Likert scale questions such as “How well are our Value Propositions aligned with customer needs?” (Osterwalder & Pigneur, 2010, p. 217). The threats and opportunities items are little useful for an entrepreneurial context, especially not for entrepreneurs who are about to start a company. Their startup does not even exist yet and therefore the threats and opportunities are far in the future and difficult to assess.

The evaluation of the BM components should be complemented by a judgment of the BM as a whole. The evaluation of a BM component is no complete evaluation because weaknesses in one component may affect another BM component. Hence, the assessment of the single building blocks should be complemented by an evaluation of the BM as a whole (Alexander Osterwalder & Pigneur, 2010). This assessment from a big picture can be done with identified evaluation criteria that do not explicitly refer to any specific BM but rather to the BM as a whole. Suitable evaluation criteria are for instance novelty, lock-in, complementarities and efficiency (Amit & Zott, 2001). So, a combination of the SWOT analysis relating to the BM canvas components and of these overall evaluation criteria novelty, lock-in, complementarities and efficiency shall be applied in this

research.

Figure 4: The Business Model Canvas

The Business Model Canvas



Source: (Osterwalder & Pigneur, 2010)

BM's can also be investigated in interaction. Linux' success may not only depend upon its own BM but also on Microsoft's BM that may allow Linux' BM to fruitfully contribute to network effects. However, the complexity of such an approach is tremendous and only feasible or recommended if there are clear and few competitors whose BM's are closely relevant for the focal firm's success (Casadesus-Masanell & Ricart, 2007). Thus, the focus lies on the evaluation of single BM's in this research.

The above mentioned evaluation criteria and frameworks are not explicitly for the social entrepreneurial context. Therefore, in the following the evaluation model will be investigated in more detail from a social entrepreneurial perspective to develop a BM and evaluation framework for the social entrepreneurial context.

2.2 General Elements and Evaluation Criteria of Social Entrepreneurial Ventures

2.2.1 Social Entrepreneurship

Social entrepreneurs often strive for creating social impact, inducing positive behavioral change, and awareness. Their needs for BMs differ from traditional commercial businesses. Hence, a short introduction into social entrepreneurship shall be given to lay the ground for a social BM framework.

The understanding of social entrepreneurship differs greatly in research and spans socially responsible commercial businesses and not-for-profit organizations alike. Although the concept of social entrepreneurship is old, the term social entrepreneurship is relatively new (Volkman, Tokarski, & Ernst, 2012). Some researchers mean not-for-profit initiatives with non-traditional funding to create social value whereas others consider the socially responsible practice of commercial businesses, or simply the contribution to the solution of social problems as social entrepreneurship (Mair & Martí, 2006). Sometimes, the whole “broader range of socially innovative initiatives in a spectrum from for-profit to voluntary organizations” (Huybrechts & Nicholls, 2012) is subsumed under the term social entrepreneurship by researchers.

The broader definition of “social entrepreneurship (...) as (...) the innovative use and combination of resources to pursue opportunities to catalyze social change and/or address social needs” is suitable for this research (Mair & Martí, 2006). Furthermore, social entrepreneurship refers to an innovative initiative with a social objective and so stresses that profit-maximization is not the primary goal (Austin et al., 2006).

A very detailed definition, which is still broad enough to include a variety of examples, is that social entrepreneurship is: when one person or a group of people strives for creating social value either exclusively or in some significant way; it has the capability to use opportunities to generate that value; it applies innovative approaches to create and deliver social value; it tolerates high risks; it copes well with scarcity of resources during the mission (Peredo & McLean, 2006). Although the toleration of high risks is often considered as entrepreneurial, a strong preference for risk-minimization (Faltin & Ripsas, 2010) is more suitable for this research. Especially crowdfunding reduces financial risks considerably and may be used by many entrepreneurs in order to reduce risks. Thus, this definition of social entrepreneurship is inadequate for this research for which the most important feature is that social entrepreneurship includes innovative entrepreneurial approaches to create social value.

Three main building blocks of social entrepreneurship are distinguished, namely sociality, innovation, and market orientation. Sociality as the main difference to commercial entrepreneurship refers to the social and environmental focus of social entrepreneurship and may include the creation of public goods and positive externalities in six main areas: welfare and health services, education and training, economic development, disaster relief and international aid, social justice and political change, and environmental planning and management (Huybrechts & Nicholls, 2012).

Social entrepreneurship is no synonym for social businesses though (Huybrechts & Nicholls, 2012). The term “social business” is hardly used in research, except by Mohammed Yunus (Huybrechts & Nicholls, 2012). Just as social entrepreneurial initiatives, social businesses are considered to be in between the two extremes of solely profit-maximizing companies and non-profit organizations focusing social objectives. Costs have to be covered from operations, and owners are entitled to get back their respective investments. However, social businesses are more concerned with the social

cause than with profits (Yunus et al., 2010). Despite these similarities, the social business' definition is much more restrictive than social entrepreneurship (Huybrechts & Nicholls, 2012) because it is stated that social business owners never want to make profits themselves (Yunus et al., 2010). This feature is more common for not-for-profit organizations. In contrast to the latter, social businesses raise all their income through their operations on the market instead of philanthropy and public funding (Huybrechts & Nicholls, 2012).

Social entrepreneurship is also not a new form of corporate social responsibility (CSR). The first reason is that CSR does not have to be entrepreneurial or innovative (Huybrechts & Nicholls, 2012). CSR is defined as “a commitment to improve [societal] well-being through discretionary business practices and contributions of corporate resources” (Du, Bhattacharya, & Sen, 2010, p. 8). Secondly, in social entrepreneurship the primary mission is social whereas in corporations profit-maximization remains the ultimate goal (Huybrechts & Nicholls, 2012).

Social BMs may have multiple goals that should be considered for the evaluation. Possible goals for an organization can be amongst others profit maximization, a healthy environment, or a good place to work. An organization may have multiple goals to be balanced, and then this adequate balance becomes an overarching goal itself (Casadesus-Masanell & Ricart, 2007). Accordingly, a BM may lead to apparently positive outcomes such as high profits and may fail though, for it does not create social impact, which may be the highest goal of the respective firm. Thus, (multiple) goal alignment is an important feature for the evaluation of social BMs and will be applied in this research.

2.2.2 Disadvantages of existing Evaluation Models for Social Entrepreneurs

An evaluation model for social entrepreneurs has to consider all the features of social entrepreneurs who share the innovative approach and the market orientation with commercial entrepreneurs but have a social mission as their ultimate goal. In the following, a few disadvantages of current evaluation criteria and frameworks are discussed.

A strong focus on quantitative financial indicators is not suitable for entrepreneurs in early phases of the new venture creation. In general, mainly financial indicators such as profitability and margins are used “that are very difficult, if possible at all, to measure ex ante” (Pateli & Giaglis, 2003, p. 17). Thus, an entrepreneur who wants to start a business can hardly use such criteria, especially not if the BM is innovative, which worsens the predictability of profits and margins. At the same time, especially entrepreneurs, who want to start up a company, need the BM and its evaluation, mostly because they lack the feedback from the market that already existing businesses get at least in order to make risk-free experiments. Thus, financial indicators should not be the sole evaluation criteria but can reasonably complement further criteria.

Evaluation criteria should serve the stakeholders of evaluation frameworks and these stakeholders may have different purposes and consider different states of their business as “successful”. Therefore, research in evaluation models should more explicitly consider which stakeholders the models shall serve and align the models to the stakeholders' purposes.

Despite the importance of social entrepreneurial new business formations (Austin et al., 2006), most of the evaluation criteria neglect non-financial performance criteria of firms. Especially social entrepreneurs are interested in creating social impact. As a result, the inclusion of the evaluation of

social and environmental benefits is missing.

The BM can for instance be viewed from a corporate sustainability perspective. Therefore, Lüdeke-Freund (2009) extended the BM canvas by a non-market pillar for societal and environmental value and by the accentuation of sustainability aspects in the original pillars. The non-market pillar includes sustainability related values and costs of a BM that are non-market and therefore not considered in the basic four market-related pillars. In the non-market pillar, negative and positive externalities are considered, which relate to for example soil, fresh air, social and human capital that may be not fully priced (Lüdeke-Freund, 2009). This BM framework could serve as a basis for the development of social business model framework.

Osterwalder & Pigneur (2010) suggested a similar extension of the original BM canvas for “triple-bottom-line” businesses, namely social entrepreneurs. It adds the building blocks social and environmental costs and social and environmental benefits to the cost-structure and revenue-structure. This extension makes the BM canvas ontology more suitable for social entrepreneurs. The suggested SWOT analysis questionnaire by Osterwalder and Pigneur (2010) does not reflect this extension by the social and environmental costs and benefits yet, though. Therefore, further questionnaire items related to the social and environmental costs and benefits should be added to the original SWOT analysis questionnaire to apply it in the social entrepreneurial context in this research.

A further explicitly social BM was proposed to take the specific needs of social businesses into account. Five major recommendations are given for a social BM. One recommendation for a social BM is that “the value proposition and value constellation of the social business model must link all stakeholders, including shareholders who understand and accept its social mission” (Yunus et al.,

2010, p. 317). Another advice for social businesses is to clearly define the social profit objectives to all stakeholders and shareholders. A BM framework that includes the general objectives of the founder and the founder's social objectives in particular, enables the clear communication towards shareholders in a clear and holistic way. An important constraint even in a social business are potential negative environmental and social impacts that one wants to limit (Yunus et al., 2010). Hence, these aspects should be clearly addressed in a social BM. These five above mentioned lessons do not directly relate to BMs as the “the rationale of how an organization creates, delivers and captures value (Osterwalder & Pigneur, 2010). These lessons rather concern the process of designing and implementing a BM. No social business ontology is suggested but the proposed social BM framework fits with other social BM frameworks (Lüdeke-Freund, 2009) or ontologies (Osterwalder & Pigneur, 2010) because it similarly adds social and environmental profit to the more traditional BM framework.

However, the alignment of the BM to the founder's social and environmental goals should be also considered for the assessment of the social entrepreneurial BM. It was suggested to evaluate the alignment to the respective organization's multiple goals (Casadesus-Masanell & Ricart, 2007). Since social entrepreneurs have a social mission, the alignment to the founder's social and environmental goals will be part of the suggested evaluation framework of this research.

The evaluation of social entrepreneurs' BMs should also consider the financial goals of the founders because social entrepreneurial organizations may be for-profit. In contrast to established companies that may even be publicly traded, new venture types vary a lot and range from life style companies to high-growth companies. Therefore, “an integrated business model must capture the entrepreneur’s time, scope, and size ambitions or what might be termed the firm’s ‘investment model’” (Morris et al., 2005, p. 730). This facilitates the alignment of the BM to the goal of the

respective organization (Casadesus-Masanell & Ricart, 2007). An entrepreneur may for instance strive for subsistence and may simply want the startup to survive. Another financial goal of an entrepreneur can be to generate a stable and ongoing income stream. In contrast, when an entrepreneur wants the startup to grow, the investments and reinvestments are substantial to realize significant capital gain for investors. In the speculative model, the entrepreneur strives to signal venture potential quite soon to sell the startup. Such a BM framework including the founder's goal is suitable for an entrepreneur (Morris et al., 2005). Hence, the financial goals of the founder will be added to the framework that is developed in this research.

Crowdfunding as a suitable means of funding should be considered in an evaluation framework for the social entrepreneur. Funding is usually not included in the BM because one tacitly assumes that if the BM is sound an investor will be found. However, traditional funding channels have been shown to be suboptimal if not even inadequate for the starting of a social entrepreneurial venture (Agrawal, Catalini, & Goldfarb, 2010; Lehner, 2012; Ridley-Duff, 2008). Hence, crowdfunding is particularly important for social entrepreneurs. “Crowdfunding (CF) may just offer one (...) especially suited answer to the financing needs of social ventures, as crowd investors typically do not look much at collaterals or business plans, but at the ideas and core values of the firm (...) and thus at its legitimacy” (Lehner, 2012, p. 3). Social businesses can lead “to a 'post-crisis system' where stakeholder value replaces the shareholder paradigm” (Yunus et al., 2010, p. 320). Crowdfunding as a recently popular phenomenon enables entrepreneurs to create exactly such a micro-system. In a very elegant way it links the value constellation of a social business with a high number of stakeholders on the one hand and gets “shareholders” that understand and accept the social mission on the other hand. A crowdfunding campaign can communicate the social and environmental objectives to a large number of stakeholders and even co-create the project with its crowdfunding supporters. At the same time, the clear communication of the social and

environmental objectives does not hinder the fundraising through crowdfunding but actually facilitates it (Lambert & Schwienbacher, 2010). This points to the fact that crowdfunding supporters both understand and accept the social mission of the respective initiatives.

Concluding, one can state that the proposed framework for entrepreneurs (Morris et al., 2005), the BM canvas (Osterwalder & Pigneur, 2010), the e3 framework (Gordijn et al., 2001) and many other BM and/or evaluation frameworks lack components reflecting the situation of social entrepreneurs. Despite the importance of the BM concept for corporate sustainability management, almost no research efforts have been conducted to adjust the BM concept for this purpose or consider sustainability aspects in the BM context. Furthermore, the BM canvas and the e3 frameworks are missing the alignment to the entrepreneur's goals and are therefore of limited suitability for the evaluation in the entrepreneurial context. The integrated BM evaluation frameworks lack the funding part, at least explicitly for social entrepreneurs and with regard to crowdfunding.

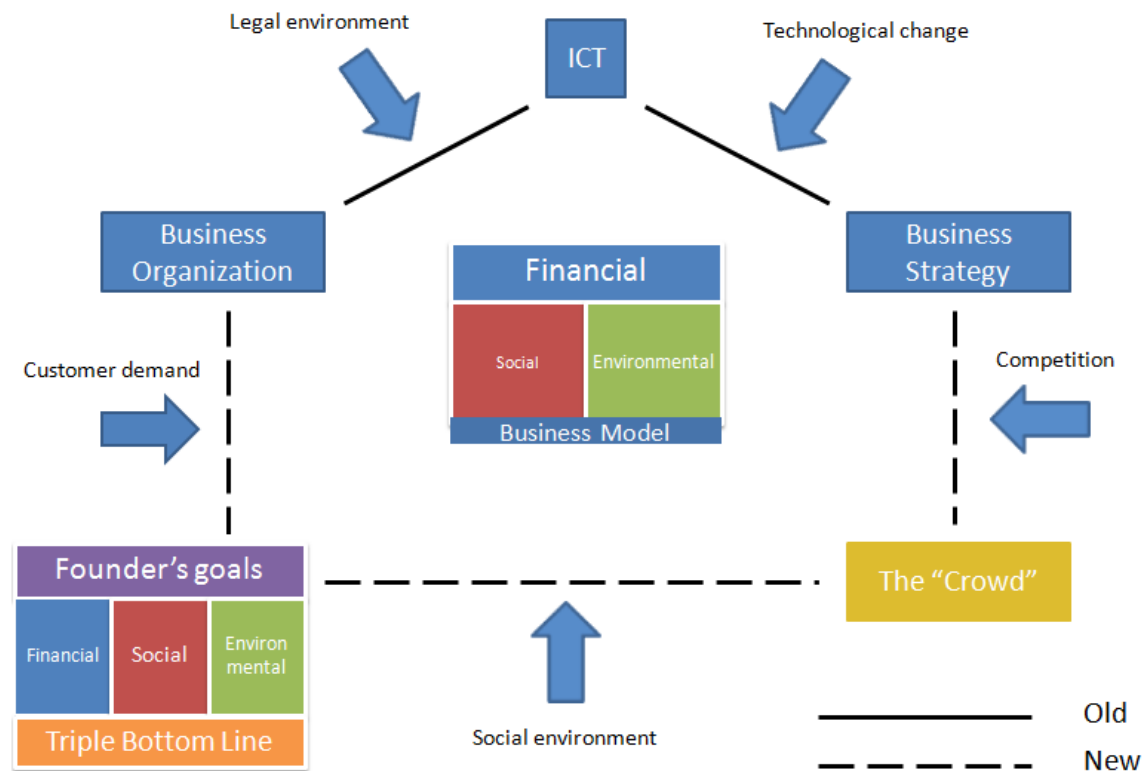
2.2.3 Development of a new Evaluation Model for Social Entrepreneurs

Therefore, a BM framework is suggested, which extends the traditional one by the founders' goals, and the “crowd” as the stakeholders and potential crowdfunding supporters of social entrepreneurial ventures. It was suggested to add the founder's goals to the entrepreneurial BM itself (Morris et al., 2005). Although the founder's goals are very important for the evaluation of an entrepreneurial BM and they should be defined before or while creating this BM, it does not contribute to the “the rationale of how an organization creates, delivers and captures value” (Osterwalder & Pigneur, 2010, p. 14). Hence, the founder's goals should not be considered as part of the BM itself but rather as something that is connected to the business organization, ICT, business strategy, and “The Crowd” via the BM. “The Crowd” is embedded in this framework because a neglect of the “crowd” might lead to a sound BM but it may not be suitable for any forms of crowdfunding. Then, one

might not be able to implement the BM due to lack of initial funding, neither via traditional nor via crowdfunding channels. In such a framework, the BM links the founder's financial, social, and environmental goals with the “crowd” in a very early stage of the startup. It allows creating a BM that equally satisfies multiple goals of the founders but also stakeholders and crowdfunding supporters. If only one of these parties is not sufficiently content with the BM the launch of a social entrepreneurial startup might be endangered. In later stages the BMs also connects the business organization, ICT, and business strategy.

What was called the business triangle between business organization, ICT, and business strategy with the BM in between in the traditional BM framework (Osterwalder et al., 2005), is transformed into a social entrepreneurial pentagon between business organization, ICT, business strategy, the founder's goals and the “crowd”. Just as the business triangle, the social entrepreneurial pentagon is prone to external pressures such as competition, legal and social environment, customer demand and technological change. The social environment has special relevance for the social entrepreneurial pentagon as it is constantly changing what is considered as “social”, which affects the moral legitimacy of the respective social mission (Dart, 2004).

Figure 5: Suggestion of a new BM framework for the social entrepreneur



Hence, on the basis of the above suggested BM evaluation framework the assessment of the social entrepreneurial BM includes

1. the judgment of the alignment of the BM to the founder's financial, social, and environmental goals
2. the rating of the suitability of the BM for the initial funding via crowdfunding
3. the evaluation of the core BM components (nine building blocks) plus social and environment costs and benefits, and
4. the judgment of the BM as a whole via criteria that do not relate explicitly to any BM component

2.3 Crowdfunding

2.3.1 Concepts of Crowdfunding

Social entrepreneurs often have to follow alternative paths for funding, and crowdfunding recently seems to be a very popular one for social entrepreneurs (Lambert & Schwienbacher, 2010). Therefore, the concept of crowdfunding and its BM success factors are shortly described.

Crowdfunding is only a very recently phenomenon on the internet and “unsurprisingly, there is virtually no literature at all on crowdfunding” (Lambert & Schwienbacher, 2010, p. 6). One finds more literature on the broader concept of crowdsourcing (Lambert & Schwienbacher, 2010).

Crowdsupporting is a specific form of crowdsourcing and is an open call towards individuals instead of professional parties for a collective cooperation (usually over the internet) to financially support efforts of companies or other people for specific purposes in form of donation or for non-financial rewards or voting rights (Kaltenbeck, 2011; Wojciechowski, 2009). The more general term of crowdsourcing is the use of the crowd's creativity, feedback, recommendations and others. In contrast, crowdfunding stresses the financial support from the crowd (Lambert & Schwienbacher, 2010). This research mainly refers to crowdsupporting. Thus, other forms of crowdfunding such as crowddonating, or crowdinvesting, where supporters get shares of the firm, are neglected in this research.

Crowdsupporting is primarily used to finance creative projects. In return, each supporter gets some non-financial good. Depending on the respective supported amount, often parts or the whole product resulting from the creative project are given to supporters. Supporters of a crowdsupporting campaign for a board game may for instance get the whole game for a support of \$50 and only the

nicely designed dice for an amount of \$10 (Kaltenbeck, 2011).

In crowdfunding there are three different forms of investment, namely donations, active and passive investments (Lambert & Schwienbacher, 2010; Schwienbacher & Larralde, 2010). Donors don't get anything significant in exchange, active investors can get involved in the project for instance by giving feedback on product design features and passive investors get some reward, often the product to be developed as the outcome of the project (Schwienbacher & Larralde, 2010). About 22 % of the crowdfunding investments are pure donations, 32% are passive and 60% are active investments (Lambert & Schwienbacher, 2010).

2.3.2 Success Factors for Crowdsupporting Campaigns

Success factors for crowdsupporting can contribute both to the design and to the evaluation of BMs to enhance the suitability of BMs for crowdsupporting. Many crowdfunding success factors, which are identified in literature, such as short campaign duration for instance, are omitted in this section, because these factors do not relate to the BM but rather to the governance and implementation of the crowdfunding initiative.

Importantly, crowdfunding campaigns featuring a product get more funding than the ones offering a service. A reasonable explanation may be that the delivery of a product is contractible in the sense that it can be legally more easily enforced (Lambert & Schwienbacher, 2010) and consequently passive investments may be more attractive than in service-oriented initiatives. A benefit for the fundraiser is that via presales of the product to the crowdfunding supporters, the entrepreneur can apply an effective form of price discrimination against self-selecting high paying consumers (Belleflamme, Lambert, & Schwienbacher, 2010).

Furthermore, rewards and control seem to be substitutes for products to be given to supporters. Hence, if one cannot offer active investments to supporters one should provide passive investments instead (Lambert & Schwienbacher, 2010). Many supporters of crowdfunding campaigns are mainly intrinsically motivated, even if they give several hundreds of Euros and get shares in return (Schwienbacher & Larralde, 2010). They would like to be part of an entrepreneurial venture. Their needs can be satisfied by giving them active investments that allow them to bring in their knowledge and feedback. It is recommended to offer a good mix between active and passive investments to attract people with different preferences (Kaltenbeck, 2011).

Furthermore, crowdfunding is the more attractive to fundraisers, in comparison to traditional funding, the lower the capital requirement below a certain threshold (Belleflamme et al., 2010). Likewise, the chances of a successful crowdfunding initiative is the higher the lower the required capital (Mollick, 2012). This finding coincides with the recommendation of designing a BM that requires little capital to be more independent from investors (Faltin & Ripsas, 2010). Moreover, it was found that the higher the required capital is, the lower the chances for the crowdfunding campaign to get funded (Kaltenbeck, 2011).

Early supporters and thus the personal network of the founders are crucial for the success of a crowdfunding campaign. Although in general the average geographical distance between fundraisers and investors is large, local investments dominate in the early period of a crowdfunding campaign (Rubinton, 2011). This suggests that family and friends may be important for a crowdfunding initiative because their early support is a positive sign for potential investors and the latter are significantly influenced by popularity lists on the respective crowdfunding platform (Ward & Ramachandran, 2010). It is stated that the adoption pattern in a crowdfunding campaign differs from the adoption curve of Rogers because the adoption curve of Rogers only applies to centralized

systems. Crowdfunding is a decentralized system and thus the innovators are not the ones to adopt the product first but rather the first-degree network members and then the second-degree ones etc.. The importance of the first-degree network also stems from the strong information asymmetry in crowdfunding projects between the project team and potential supporters (Kaltenbeck, 2011). The more Facebook friends the founder of the crowdfunding project has, the higher the likelihood of success (Mollick, 2012).

As a result, a network-based BM of a social entrepreneurial crowdfunding initiative, which heavily relies on close partners for the value creation, may profit from these partners who are prone to less information asymmetry and may have a strong interest in promoting the crowdfunding initiative within their own network. Such a network-based BM may result in an extension of the first- or second-degree network. Drawing on network theory, it was proposed that especially as the Internet can link networks, structural holes may play an important role in linking “cycles of investors (...) and thus globally disperse information about the investment opportunity” (Lehner, 2012, p. 17). With that respect, BMs including several partners may be helpful to span these structural holes and obtain a bigger reach in a crowdfunding initiative but also to show potential crowdfunding supporters that professionals believe in the project (“The 7 Deadly Sins of Crowdfunding” n.d.).

More generally and referring to this last finding, it may be wise to attract a bigger variety of people to raise the chance of funding success. Thus, a BM that includes complementarities between products and services, between online and offline assets, between technologies, and between activities (Amit & Zott, 2001) may appeal to various people and consequently attract a higher number of supporters.

Interestingly, non-profit organizations tend to raise more money via crowdfunding than for-profit

organizations. They collect on average 200% more funding than targeted. Reasons may be the stronger focus on quality rather than profits (Lambert & Schwienbacher, 2010). Likewise, it is to be expected that social entrepreneurs are also able to raise more money than traditional for-profit initiatives even if they are formally for-profit. Social entrepreneurship refers to an innovative initiative with a social object and stresses that profit-maximization is not the primary goal (Austin et al., 2006). Investors of social entrepreneurial campaigns may expect a higher focus on the quality of the outcome than in the case of solely profit-maximizing firms.

The crowdfunding decisions of supporters may also depend upon the expected quality of the product or service. The feasibility of the project, the likelihood of success and a strong team as a signal of quality may be important for crowdfunding decisions (Mollick, 2012). In a case study, 89 % of the crowdfunding supporters stated that they think the team of the crowdfunding project is competent (Schwienbacher & Larralde, 2010).

Concluding, one can state that BM success factors of crowdfunding campaigns are the emphasis on social entrepreneurial aspects, a network-based BM, the focus a tangible product rather than an intangible service, and the right mix between passive, and active investments to attract both extrinsically and intrinsically motivated supporters. A tangible product existing out of many elements, such as a board game, is more suitable for crowdfunding than the creation of a designer chair, for instance. Parts of a board game, such as a simple version for fewer players, can be reasonably given away for smaller funding amounts of supporters. The BM should be sufficiently open so that it is possible to offer reasonable and valuable active investment opportunities such as voting rights over design drafts. Since the crowdfunding decisions of supporters also depend upon the expected quality of the product, feasibility and a good team may increase the chances of successful crowdfunding. Hence, having team members with a proven track record is very

beneficial. The project should be feasible from the view of crowdsupporters. A good network of early supporters of the crowdfunding campaign is crucial and can be realized by activating family, friends and business partners. Thus, a network-based BM may raise the chances of successful funding. More generally and referring to the last finding, it may be wise to attract a bigger variety of people to raise the chance of funding success. Finally, a high overall likeability of the initiative enhances the financial support of many crowdfunders.

2.4 Business Models and Evaluation Criteria of (Educational) Online Games

2.4.1 Educational Games

After having reviewed BMs and the BM evaluation criteria, the BM value creation factors of online games are of interest. Since the suggested BM framework for social entrepreneurs shall be applied to online educational games, a brief introduction into educational games is given in the following.

Almost any project combining video games and education can be labeled as game-based learning. Such games span both high-profile commercial games and educational content with some interactive multimedia elements. Hence, educational game design is a broad topic that covers different perspectives and methodologies (Moreno-Ger et al., 2008). Either way, educational games have the common features of other games like story, art and software but some pedagogic elements are added (Susi, Johannesson, & Backlund, 2007).

Hence, educational game developers often are social entrepreneurial. This holds true irrespective of the legal form of the company if one adheres to the broader definition of social entrepreneurs that does not exclude for-profit organizations. Educational game developers aim at training or informing

the players and hence contribute to education (Susi et al., 2007). Therefore, educational game developers fulfill the sociality criterion of social entrepreneurship, which amongst others, includes the focus on the creation of a public good in the domain of education and training (Huybrechts & Nicholls, 2012).

There are multiple concepts that relate to educational games and that are partially overlapping. These related domains include e-learning, edutainment, game-based learning, serious games, games for change, and digital game-based learning. E-learning is computer-aided learning, distance learning, and often supported by interactive technologies (Susi et al., 2007). Serious games mainly aim at incurring concrete key learning resulting in measurable and sustained changes in behavior (Derryberry, 2007). The terms “game-based learning” and “serious game” are often used almost interchangeably. Serious games run on personal computers, over the internet or video game consoles and are most used for training, advertising, simulation or educational purposes. Serious games have the common features of other games like story, art and software but some pedagogic elements are added. It is debated though, whether the pedagogic elements or the story and fun part should be stressed. According to some researchers, entertainment should come first in serious games to make sure that it will be actually played (Susi et al., 2007). Others state that the fun part is an additive to the more important pedagogic element. The latter describe serious games as games whose primary purpose is not entertainment, enjoyment, or fun (Michael & Chen, 2005). Some researchers also recommend a balance between educational value and fun for effective learning effects (Moreno-Ger et al., 2008).

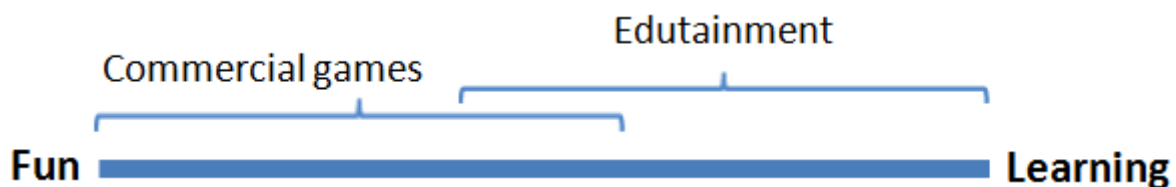
Games on the educational extreme of the spectrum are often labeled edutainment initiatives. The educational content was created first and gaming elements are added thereafter in edutainment approaches. Several authors view this approach as futile though, because the fun factor is neglected

and the motivation and learning effects evaporate (Moreno-Ger et al., 2008). In practice, edutainment software often failed because the games were not fun although this was intended (Susi et al., 2007).

On the other extreme of the continuum there are initially purely commercial games with no educational purpose at all that can provide significant learning effects though, e.g. SimCity. Such games' learning orientation can suffer due to a focus on oversimplified and rather fun content (Moreno-Ger et al., 2008).

Either way, commercial or edutainment games have the two different goals of learning and entertainment and in accordance with the specific perspective, target group, setting or purpose one may prefer a balance in between fun and learning, sometimes closer to the one and sometimes closer to the other extreme of the continuum.

Figure 1: Spectrum of games between entertainment and educational orientation



2.4.2 Which business models exist for online games?

After having defined educational games, a description of the main existing BMs for online games, to which educational online games belong, shall be provided and discussed. Due to the limited literature about BMs for educational games, the literature for online games in general is investigated.

Online games' BMs are frequently characterized by their economic model (Oh & Ryu, 2007) and online games have various revenue streams such as advertising, usage fees, sales of customer data and other value-added services (Lehdonvirta, 2009). Most online games' revenues come from item-selling based payment and subscription based payment model, though (Oh & Ryu, 2007). Before 2005, most MMORPG (massively multiplayer online role-playing games) used a subscription model where players can pre-purchase a number of hours or period of time during which they can play for an unlimited amount of time, usually USD12 to USD15 per month. The item-based revenue model, also called “free-to-play” or “free-of-charge model” is recently especially popular among casual games and allows players to play for free but they have to pay for additional in-game items such as decorative features or the players have to watch advertisements prior to being able to play the game (Oh & Ryu, 2007; Ren & Hardwick, 2008). In China about 80% of all online games applied this revenue model. In general, the item-based revenue model in online gaming took over the role as the most popular revenue model from the subscription model, not only for casual games. However, some online games combine different revenue models such as item-based, subscription, and others. Network effects are very strong in the online gaming market and promote a winner takes it all tendency (Ren & Hardwick, 2008).

A potential disadvantage of item-based revenue models is that these revenue models can lead to customer attrition if they are not carefully configured. If the in-game items to be purchased are actually directly affecting game play and promote the advancement of a player, for instance by giving him powerful weapons, it contributes to customer attrition. One reason is that players who initially do not plan to pay will pay at last to prevent being beaten all the time by paying players. Another reason is that players who actually intend to pay end up purchasing more than expected because they feel forced to do so to compete with other players who are paying more. Some

operators try to circumvent this problem by offering two servers for the same game, one with subscription and one with item-based revenue model (Ren & Hardwick, 2008). Thus, a potential typology of the revenue models in online gaming should distinguish between item-based selling that is directly affecting game play and item-based selling that is purely decorative and not affecting the game balance.

The subscription fee model is especially attractive to incumbents in the online game market because it is defensive against new market entrants. This revenue model creates a potential lock-in on the players because the financial burden may prevent them from playing other games that are not for free. Accordingly, the subscription fee model makes it more difficult for new market entrants to compete with incumbent game companies that apply subscription fee models. This intensifies the network effects and creates a virtuous cycle with a tendency to winner takes it all. It is empirically shown that few online games dominate the market. Another indirect evidence for the stated entrance barriers are the online games' relatively long life cycle with about five years (Oh & Ryu, 2007).

Therefore, new entrants try to attract players by free of charge services, which resulted in overall lower service fees. Free of charge casual games gained more market share internationally. This is partly due to the rising number of female online players. They prefer casual online games for free on websites such as Pogo.com, MSN.com and Yahoo.com etc. (Oh & Ryu, 2007).

The item-selling revenue model has the advantages of higher attractiveness towards players for financial reasons and augmented flexibility concerning the game content, compared to the subscription fee model. The item-selling revenue model puts a relatively lower financial burden on the players who can choose what they want to buy with their virtual cash. This attracts a higher number of players. Especially women are reluctant to pay subscription fees and prefer the item-

selling based model. Furthermore, with an item-selling revenue model there is higher flexibility with regard to the update of game content. In subscription fee games changes are made with caution to not upset current subscribers whereas the update of content in item-selling games may even please the current and attract new players (Oh & Ryu, 2007).

Disadvantages of the free-to-play or freemium revenue models, which heavily rely on in-game item-selling is the required high number of players and the limitations on the game design. Only about 3-5% of the players in free-to-play social games ever pay for the game. Hence, a relatively high number of players is necessary to generate sufficient revenues (Tyni et al., 2011). This has consequences for the game design: in order to attract as many players as possible most social games are very simple and hardly require any intellectual effort (Schmitt, 2012). An educational game should thus not only rely on in-game item selling because it may either not generate enough revenues or it has to be designed too simplistic for educational purposes. For freemium games the challenge is to make the free version of the game fun enough but attract players for an upgrade. The non-paying players are very important in these revenue schemes though, because they promote viral marketing. Such a freemium BM for online games has the disadvantage that the game has to be designed both to promote the item-selling and to enhance viral marketing (Tyni et al., 2011). This may lead to homogenous game designs across different freemium games and may intensify the competition.

The creation of synergies between item-selling for real and for game money can enhance both item sales and playing continuity. Players do not have to pay real money to get game money; often they receive the more game money for free the longer they play. It is important though that the in-game items to be purchased with real money are strictly separated from those purchased with game money. Otherwise, players are too inclined to initially buy in-game items with real money to save

time and then stop playing due to the little sunk costs in comparison to the possible sunk costs of a lot of time spent in the game to buy an in-game item. Hence, in-game items to be bought by real money and game money have to be carefully balanced to promote both item-selling and continuation of game play. It is recommended to offer a wide range of in-game items to increase sales. Furthermore, it is advised that decorative in-game items can be used permanently by purchasers. In contrast, the functions to fasten the achievement of game experience should be purchased by game money only that players get the longer they play. Otherwise the game balance is easily at stake (Oh & Ryu, 2007).

An illustrative example of the above mentioned synergetic configuration is the online game Kart Rider. On the one hand, players can buy decorative in-game items and special game capabilities with real money. On the other hand, the longer players play the more game money they get to receive special effects with which they can “boast themselves with new decorative in-game items to other players” (Oh & Ryu, 2007), which creates lock-in due to increasing levels of personalization (Amit & Zott, 2001). Since the special effects for game money are quite “expensive”, players purchase additional game capabilities to advance more quickly through the game to afford the special effects with the game money earned (Oh & Ryu, 2007).

For an educational game, it is inadequate to facilitate the advancement within the game by special functions because it hinders learning experiences. Instead of promoting by acquiring certain knowledge and skills in the game, a player can proceed more quickly due to additional functions.

Accordingly, a way to apply the very same principle to educational games in an appropriate way is to give players a special function that facilitates the learning itself. Players can then augment their skills and advance more quickly due to their learning experiences. An example in a commercial shooter game is a tool that allows the saving of the replay of a game screen of a shooter game (Oh

& Ryu, 2007). It allows players to analyze their playing behavior, detect own tactical weaknesses and learn to play better. One way for an educational game is to provide players with certain game statistics that facilitates the recognition of certain patterns and certain weaknesses in the own playing style. In strategy games with a limited number of players, players may also be able to actively partner up with other players of equal skill and/or experience level. Then, the purchase of game statistics for real money is not a serious problem anymore because it does not endanger the general game balance.

Viral marketing, which is crucial for many online games, can be enhanced by strengthening the personal relationship of players to the game. Especially Players of social games are motivated to share game related posts on their Facebook wall if they have a personal relationship to the product. Viral posts should thus stress personal achievements or decisions in the game (Tyni et al., 2011). In an educational game, players experience personal learning that may motivate players to share these achievements.

A recently upcoming but overall little widespread revenue model is in-game advertising. In-game advertising receives a lot of attention from both game producers to generate new revenue streams and from media strategists to target audiences that leave traditional media and turn to games. Since 2004 advergaming also developed into an academic research domain (Svahn, 2005). It was shown that in-game advertising improves the brand memory and the more prominent the placement the better the brand memory among recipients. Furthermore, in-game advertisement improves the brand attitude of recipients, especially if the attitude towards the game itself is positive (Mau, Kehres, & Silberer, 2006). This effect is even stronger if the game theme relates to the sponsor's advertised product. Since most advergaming are high quality 3D games, it is very surprising “that the positive effect of product-relevant advergaming can be achieved with fairly simplistic, and probably less

expensive, online games” (Wise, Bolls, Kim, Venkataraman, & Meyer, 2008, p. 33). Therefore, quite simple, low-budget educational games without powerful graphics could potentially apply in-game advertising as a new way to generate revenues.

Concerning the monetization of educational games, advergaming is viewed ambiguously. It was stated that “perhaps the most controversial trend for serious games is the use of in-game advertising or sponsorship. This offers some promising opportunities for serious game developers in seeking new sources of funding and revenue” (Derryberry, 2007, p. 13). However, skeptics of this BM think that in-game advertising may negatively impact the learning experience (Derryberry, 2007).

Advergaming can also be combined with gamification approaches. Gamification initiatives use “video game elements in non-gaming systems to improve user experience (UX) and user engagement” (Deterding, Sicart, Nacke, O’Hara, & Dixon, 2011, p. 1). Some gamification initiatives connect gaming with social responsibility and philanthropy. Recently, a number of games have linked gaming with brands, their target market, social responsibility and philanthropy to allow firms to do cause-marketing and it is expected that more partnerships between brands, causes and game developers will be sealed. Some of these games are educational ones and some are regular commercial ones. Brands use cause-marketing amongst others to improve the customers' brand perception (Lazarus & Jayaraman, 2012) and consequently amongst others for Corporate Social Responsibility communication. According to forecasts, the gamification market will make a yearly turnover of \$2.8 billion by 2016. Enterprise gamification as a subset is expected to gain more importance than consumer gamification by 2013 (“**Gamification in 2012**“ n.d.).

There are several examples of game developer companies with a philanthropic orientation. One example for a game company developing non-educational games and integrating philanthropy is

Zynga. By selling in-game items Zynga raised about \$4 Mio. for disaster relief in Haiti (Lazarus & Jayaraman, 2012). An example for connecting brands, casual gamers and charity is “Games That Give” (“gamesthatgive” n.d.), which allows brands to offer casual games on their Facebook fan page, reduce the costs for the acquisition of fans while using an innovative CSR communication tool to improve the brands' image. This kind of BM distinguishes significantly from the vast majority of online games that have very similar BMs. This BM is heavily partner network-based and is thus more complex. By generating revenues from sponsors there is no or little necessity to charge fees from players. Accordingly, such a BM may be very suitable for educational games because the target group of educational games may often not be willing or able to pay for games. It is recommended that the in-game advertising or branding does not conflict with the pedagogic mission, though (Derryberry, 2007).

The following list summarizes the BM design recommendations for educational games basing on the given literature review on BM for (educational) online games:

1. Apply free-to-play, good balance of real and game money
2. Promotion of both continuation of play and revenues from players
3. Avoid industries such as tobacco and oil for advergames
4. Combination of cause-marketing of sponsors with in-game advertisements
5. In-game item-selling should not affect game balance between players
6. Sell game statistics to players to promote learning
7. Foster personalization to improve viral marketing
8. Prominent in-game advertisement placement for augmented brand memory
9. Good fit between in-game ads and theme of game

3 Method

3.1 Research Design

This thesis applies design research, because a business model shall be designed to achieve a desired future state, namely a suitable business model for the successful crowdfunding and commercialization of the potential educational online game “MoRally”.

In Design research, a new system is developed, which does not exist yet (Romme, 2003). Especially in business settings, the usage of design research aims at the improvement of a business system on certain criteria (Van Aken, Berends, & Bij, 2007).

Design research differs significantly from more traditional explanatory or exploratory research. In contrast to these, design research is concerned with whether the design will work rather than whether it is valid or true (Romme, 2003). Thus, Design Research contrasts with science which aims at creating knowledge about what already exists (Romme, 2003).

Another characteristic of Design Research questions is that research outcomes are justified based on pragmatic validity (e.g. do actions produce the intended outcome?). Design Research questions are meant to solve practical problems rather than knowledge problems (Wieringa, 2009). Design Research is based on a pragmatic approach in order to develop a specific solution for a specific problem in a specific context (Van Aken, 2005). Thus, it is a suitable approach for this thesis, because the specific solution is a specific BM, the specific problem is the difficulty in funding and commercializing educational games, and the context are these times where crowdfunding became a popular means for funding of social entrepreneurs.

Design research typically follows a process, also called regulative cycle, which covers the analysis of the design problem, the design of a solution, the implementation of the solution, and the evaluation of the solution for the initial problem (Visscher & Visscher-Voerman, 2010). In the diagnosis phase of the reflective cycle the background and origins of the situation are investigated. Then, in the design phase the solution of the situation is designed. In the intervention phase the suggested solution is implemented. Finally the regulative cycle closes with the evaluation phase during which it is evaluated whether the initial undesired situation is resolved (Verschuren & Doorewaard, 2010). This process is often applied iterative, such that results in one process step may indicate a necessary change in the previous steps or if the design of a possible solution proves to be not suitable, a new design might be created.

The process for this research mainly follows the regulative cycle. The sub-chapters in the “Theoretical Framework” did not only lay the theoretical ground for the BM framework that was suggested but also were the analysis of the design problem. The design of a solution is the creation of a BM for the educational game of the problem owner. The implementation of the solution in practice is omitted in this research, though. Hence, after the design phase, this research proceeds with the evaluation phase by using questionnaires.

The contrast between Design Research – as a prescribing research method – and explanatory and exploratory sciences – as describing research methods – is clearly identified by (Van Aken, 2004). In order to clarify the differences between Design Research and other scientific research methods Table 1 contains the main characteristics of each research method.

Table 1: Main differences between description-driven and prescription-driven research

Characteristic	Description-driven research programs	Prescription-driven research programs
Dominant paradigm	Explanatory sciences	Design Sciences
Focus	Problem focused	Solution focused
Perspective	Observer	Player
Logic	Hindsight	Intervention-Outcome
Typical research questions	Explanation	Alternative solutions for a class of problems
Typical research product	Causal model; quantitative law	Tested and grounded knowledge
Nature of research product	Algorithm	Heuristic
Justification	Proof	Saturated evidence
Type of resulting theory	Organization theory	Management theory

Sources: (Van Aken, 2004)

However, Design Research may be less suitable to produce highly reliable, valid, and generalizable scientific knowledge. The participation of the researcher in Design Research may lead to a result focused mindset of the researcher. The drawback is that the researcher may be biased towards the result of the research.

3.2 Design of a Business Model for MoRally

The BMs to be designed shall be created along with the nine building blocks of the BM canvas (Osterwalder et al., 2005) because this tool is widely used in practice. This facilitates the comprehension and consequently the communication of the designed BMs to questionnaire respondents. Another advantage is the existence of a practice-oriented (even if) unsystematic typology in form of different BM patterns, which does not exist for the investigated BM framework for entrepreneurs yet (Morris et al., 2005). However, in this research the extension by the environmental and social costs and benefits, which is proposed for social ventures (Osterwalder & Pigneur, 2010), is used. Furthermore, as proposed in the developed framework, the founder's goals are defined. The founder's goals cover financial (Morris et al., 2005), and social and environmental

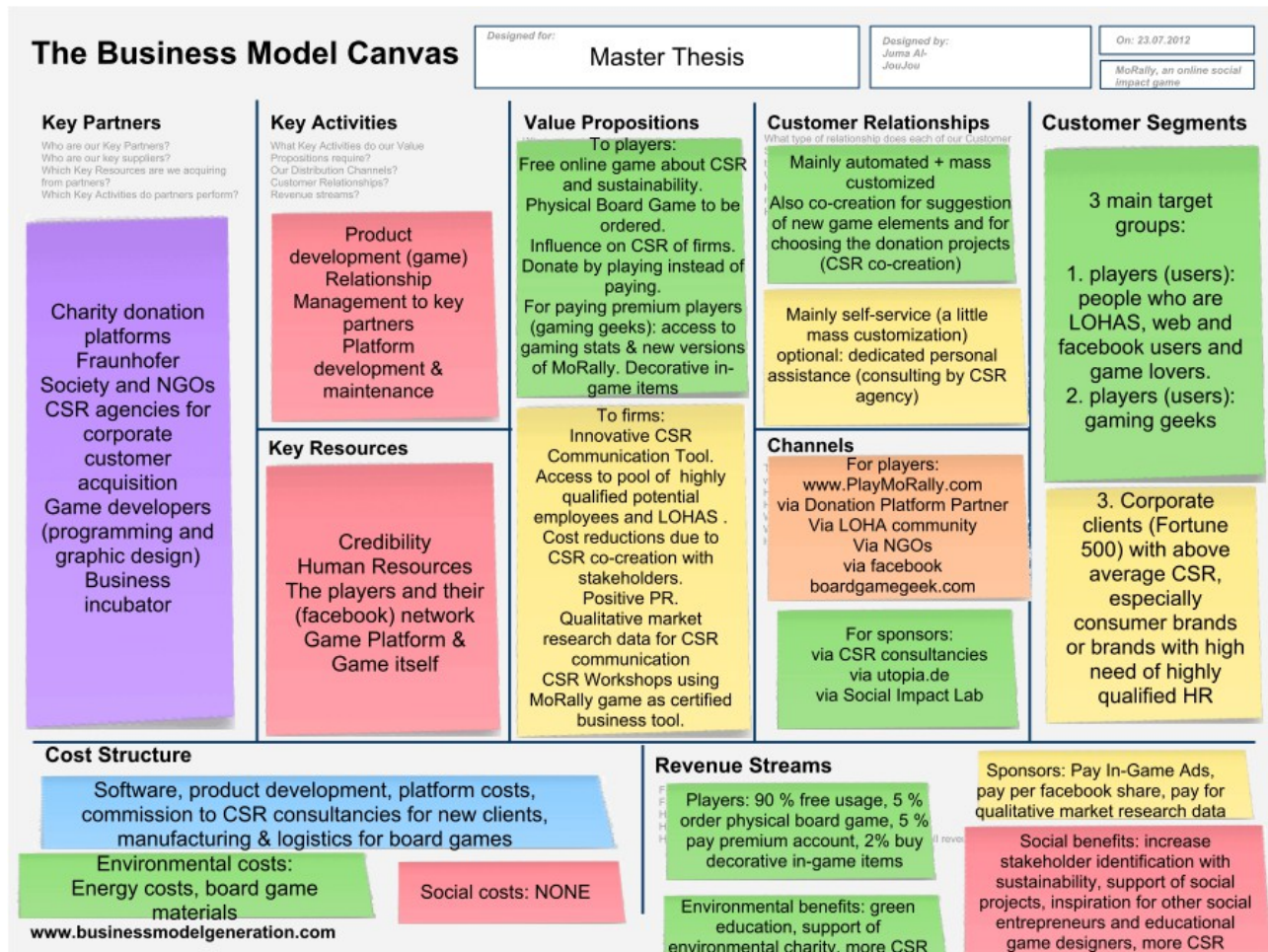
goals.

Using the practice case of an existing sustainability game not yet commercialized one possible and suitable BM for some other educational online games shall be designed. In the following, a short description of the game is given because it is a prerequisite for the understanding of the suggested BM.

Juma Al-JouJou, the author of this research, developed the strategy board game called “MoRally” around the theme of social entrepreneurship and sustainability. The players are entrepreneurs in the game. Their primary goal is to get victory points from investing in social, environmental, R&D and job related CSR projects. However, the players also have to grow their companies economically in order to be able to expand these investments. Money is important as a means for social investments but is not worth anything at the end of game. Concluding, one can state that the game is a business resource-management game where the most sustainable player wins.

In the following a preliminary BM, which was designed along the above analyzed success factors of BMs and crowdfunding will be presented. It refers to the game as the current board game but also to MoRally as a potential online “board-game style” game, similar to Monopoly or Settlers of Catan online versions.

Figure 6: Recommended business model canvas for this practice case.



Customer segments: For the players, there are two main target groups:

1. **LOHAS (Lifestyles of Health and Sustainability):** LOHAS is a demographics term often used in marketing that labels the group of people that strive for a healthy and sustainable lifestyle (Schuster, 2011). According to studies, this group of people is supposed to account for about 30 % of the population in Europe and the U.S.. LOHAS are somewhat upmarket and are well-educated. They try to consume in a sustainable way, by preferring organic, fair trade and environment-friendly products (Cohen, 2007; Schuster, 2011). This target group is chosen because the theme, the donation mechanism and the complexity of the game matches both the interests of LOHAS and their intellectual capacity.

2. **Gamers:** With regard to demographics, the average age of a UK gamer is 28 years old (Pratchett, 2005). Furthermore, about 41 % of the people who visit gaming sites such as GamesSpot, Candystand, and Pogo are female (Corti, 2006). In the age group from 25-35 years puzzles/board games/quizzes are mostly favored over other games and this preference is even stronger for the older age groups (Pratchett, 2005)

For the corporate customers (B2B):

The target group spans big corporations among the Fortune 500 with above average CSR efforts (and high budgets for CSR and campaigns for brand awareness) that are either consumer brands (to profit from better image via increased sales) or have a strong need for highly-qualified Human Resources. These match the target group for the players, namely the LOHAS.

Value Proposition:

To players:

Players get a free online game that is both fun and educational. Furthermore, players can make companies donate to their favorite charity projects on the partner donation platform, giving the players the feeling to do good while playing. For every victory point in the online game, the respective corporate sponsor pays 1 cent to charity.

Players, who subscribe for the premium account, get gaming statistics that help them to refine their strategies and improve their skill-level more quickly than players without a premium account.

Apart from playing the online game, players can also order the physical board game.

To corporate sponsors:

First of all, MoRally is an innovative CSR communication tool towards a relevant target group. The in-game advertisement the corporate sponsors can run on the project cards get a lot of attention, and their in-game advertisements are actually not distracting from the game but are content of the game since they make the project cards concrete, individual and realistic.

Figure 7: A player shares a post on Facebook, featuring the corporate sponsor and MoRally.

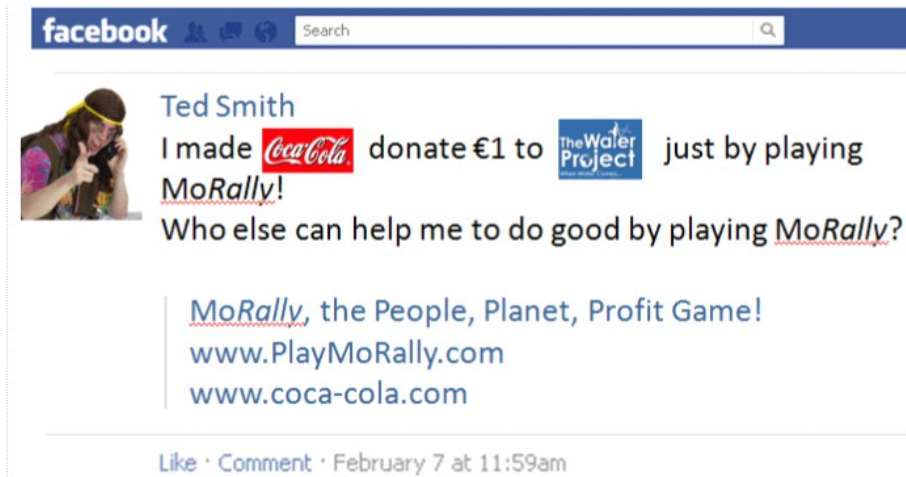


Figure 8: In-game advertising of companies advertising their real sustainability projects



Channels

To reach players (B2C):

In the beginning, a crowdfunding campaign shall raise awareness among potential players for MoRally. Other channels for raising awareness are partners such as a LOHA forum/website (e.g. Utopia.de), the partner donation platform (e.g. Justgiving.com), NGOs supporting MoRally, and of course Facebook. On the website www.PlayMoRally.com players can subscribe for a premium account or order the physical board game.

To reach sponsors (B2B):

In the very beginning, a lead customer shall be acquired via the network of incubators and investors involved with MoRally. Further customers shall be reached via sustainability communication consultancies that consult big corporations. They are offered an attractive commission by MoRally to support the customer acquisition.

Customer relationships

With players (B2C):

The customer relationships with players is mainly automated and mass customized. Players can sign up with their Facebook login, they can design their avatars' looks, and open up a MoRally online game and invite other players and friends.

However, the customer relationship is also shaped by co-creation aspects. Part of the crowdfunding campaign “give-aways”, is the opportunity to suggest further action cards with new properties that can make it both into the online and physical board game. Additionally, players choose the charity projects to be donated to. The co-creation enhances the identification with MoRally, lowers the skepticism of players towards the in-game advertisements and thus increases the CSR

communication efficacy via MoRally.

With companies (B2B):

The relationship with corporate clients is mainly automated. Firms can sign in their MoRally company account where they can upload pictures of their sustainability projects and respective action card titles. They can make a number of settings for how and to which players they want to be displayed.

Revenue streams

Players:

90 % of the players may play the game only online with a basic free account.

About 5 % may subscribe for the premium account which may be about 1EUR a month.

About 5 % of the players may order the physical board game for about EUR30.

About 2 % of the players may buy decorative in-game items to embellish and personalize their avatar.

Sponsors:

Firms pay a CPM (Cost-per-Mille) of about EUR25 for one thousand views of the in-game advertisements (normal CPMs are between EUR35 and EUR60). These firms pay EUR1 (industry average) for every Facebook share of players featuring them.

Key Resources

The key resources for MoRally is the game itself, human resources and the game platform. In freemium BMs the most important asset is usually the platform itself because it allows for the handling of non-paying customers at a very low marginal cost (Osterwalder & Pigneur, 2010).

MoRally is the mixture of a freemium BM, a multi-sided platform, and has few features from an open BM. As such, the platform is still a very important asset.

Furthermore, the game MoRally is an important intellectual asset. One can claim few IP rights for board games (in Germany hardly, in the US a bit) and competitors can in theory copy parts of the board game mechanics. However, they can hardly copy all game mechanics since this would result in very bad publicity, especially with the theme of MoRally.

An important HR asset is the designer of both the board game and BM of MoRally, Juma Al-JouJou. His responsibility is to improve MoRally, create extensions and further games, and deal with business development.

For the online development of the game and platform, substantial financial resources are necessary (minimum about EUR100 k).

Key activities

Key activities are the product (game) development, development and the maintenance of the platform, and the management of all partnerships. Especially the development and maintenance of the platform cannot be done by the current resources of the MoRally team, since IT related knowledge is still missing. Other key activities are the manufacturing and logistics of the physical board game and the charity projects management.

Key partnerships

Key partners can fill the gap between key activities and resources and perform tasks that a startup cannot perform itself (Osterwalder & Pigneur, 2010).

A game developer shall develop it for MoRally. Furthermore, MoRally should not manage own charity projects but rather cooperate with a well-known donation platform (eg. justgiving.com) which can also help to get a player base more quickly. For the manufacturing and delivery of the physical board game, production and logistics partner are necessary. Sustainability communication consultancies shall acquire corporate sponsors for an attractive commission. For the initial financing, a crowdfunding platform where bigger projects get successfully funded shall be used.

Cost structures

BM's can be broadly divided into cost-driven and value-driven ones. Cost-driven BM's focus on having the lowest possible costs and a lean cost structure. Value-driven BM's are more concerned with the creation of value, which may incur high costs (Osterwalder & Pigneur, 2010).

The cost structure of MoRally is shaped by high fixed costs at the beginning and low variable costs after the launch. The BM entails relatively high fixed costs for the product, software and platform development. Thereafter, there are very low fixed costs (very few employees are sufficient, server costs are low) and moderate variable costs for the manufacturing costs of the physical board game and the commission payments to the consultancies for the corporate customer acquisition.

Environmental and Social Costs

The main environmental costs are energy consumption for the servers, the computers of players and the delivery to players, and materials for the physical board games. These costs can be diminished by using green electricity and small and eco-friendly packaging.

There are no apparent social costs.

Environmental and Social Benefits

Since the game is educational about CSR/sustainability players learn about how companies and private people can contribute to a better environment and to social welfare. This enables players to be stronger sustainability stakeholders. Finally, eco-friendly and social charity projects are financially supported by the donation mechanism.

Founder's goals

Financial goals

Entrepreneurs follow various financial goals with their startup (Morris et al., 2005). The founder of MoRally strives for a low but stable income to be financially able to create further educational games.

Social and environmental goals

The social and environmental goals of the founder is to inform players about CSR/sustainability and consequently make them stronger stakeholders, to motivate companies to intensify their CSR efforts by improving its communication, the direct financial support of charity via the donation mechanism, and the inspiration and encouragement of likeminded educational game designers to use gamification to make social impact.

3.3 Sample

In all steps of the regulative cycle, different forms of data collection and analysis can be used within the design research approach.

After literature search and the design of a preliminary BM, this preliminary BM was evaluated by 15 respondents. The respondents, who were experts from related fields such as online gaming, social entrepreneurship, and Corporate Social Responsibility, crowdfunding, as well as serial entrepreneurs, gamers (some played MoRally already) or potential crowdfunders, filled in the Likert scale questionnaire. One respondent ran a business incubator for online gaming startups in Berlin. Another respondent is a senior consultant at iq consult and a coach for social entrepreneurs in a social business incubator. One expert was a senior consultant at a CSR network organization. A further respondent was a serial entrepreneur with several online startups and was an online media expert. Two respondents were researchers in the field of sustainable businesses at Fraunhofer Society, one further respondent founded a crowdfunding platform and another respondent ran a social business incubator. Few further respondents already played the board game and are hence potential players of MoRally.

The choice of experts can be described as in between convenience and quota sampling. Convenience sampling is mainly used in early phases of exploratory research and means to ask whomever one can find, e.g. colleagues, friends etc.. Purposive sampling, also called judgment sampling, means that members of a sample meet a predetermined criterion. Quota sampling is a specific form of purposive sampling to augment the representativeness by aligning the sample to the population (Blumberg, Cooper, & Schindler, 2008). In this research, mostly people who already knew the entrepreneurial project MoRally were asked because it required less time for them to understand the BM. However, it was tried to find participants from all major different stakeholder parties and experts from related fields. These include experts from online gaming, social entrepreneurship, crowdfunding and CSR but also potential end-users such as board game and online players and potential crowdfunding supporters. A prerequisite for participants was some business knowledge though, in order to be able to understand and judge the recommended BM.

Consulting experts and stakeholders from different industries can be very fruitful to gain insights from different perspectives.

3.4 Operationalization

For testing the designed solutions with the help of survey participants, a refined SWOT analysis in form of Likert scale questions to detect both strengths and weaknesses of the BM, ask further questions for its social and environmental value, and its suitability for crowdsupporting was used. The advantage of a SWOT analysis is that it facilitates the refinement of the existing or the creation of an alternative BM if necessary. An alternative BM can help a company “to be ready for the future” (Osterwalder et al., 2005, p. 24).

Most of the items covering the BM building blocks suggested by Osterwalder and Pigneur (2010) were used in this research. However, the items for the threats and weaknesses part were omitted because these items would have doubled the length of the questionnaire and would be hard to answer by respondents because they refer to the hypothetical threats and opportunities of a, as yet, nonexistent startup.

The choice of Likert scale questions facilitates the identification of strengths and weaknesses by covering all BM elements. Further Likert scale questions can measure to which degree the general value creation factors for BMs, success factors for crowdfunding, and the founder's goals are met. Although qualitative interviews are more common in exploratory research, a Likert scale questionnaire was used in this research because it facilitates the addition and integration of the ratings of different respondents from different industries or with different stakeholder roles. If for instance, the measures for all respondents together reveal high ratings for most areas of the

assessment but the alignment to the founder's goals, the entrepreneur can either refine the personal goals or refine the BM. If one area gets evaluated very high but another very low, the founder may sacrifice some elements of the one to enhance the other area if there is a trade-off between the two. For instance, the value proposition may be very high rated by most respondents but the infrastructure management low. The value proposition delivers value but often entails disadvantages for the infrastructure management and non-proportional costs. These kinds of insights are easier to get by a quantitative Likert scale questionnaire.

Another major advantage of the use of quantitative Likert scale items is the possibility to run several time-efficient BM experiments. The BM can be refined after the first evaluation phase and the refined BM can be assessed again. The results of the second evaluation phase can then be compared to the first evaluation phase and so on.

The Likert scale questionnaire was composed of 59 items that referred to the BM nine building block, the “Alignment to the Founder's Goals”, the “Suitability for Crowdfunding”, and the general “Business Model Success Factors”. The BM items covered the four broad BM areas that include the nine building blocks: value proposition, costs and revenues, infrastructure, and customer interface. The “Suitability for crowdfunding” included the subsections “Feasibility and Expected Quality”, “Attractiveness of the Crowdfunding Campaign” and “Network Reach”. The “Alignment to the Founder's financial goals” was comprised of the “Alignment to the Founder's social and environmental goals”, and “The Founder's Financial Goals”. Finally, the questionnaire included items for the general BM criteria concerning the novelty, lock-in, complementarities and efficiency.

Table 2: BM evaluation criteria for the questionnaire

General BM Evaluation criteria	Evaluation criteria Social Ventures	Evaluation Criteria for Crowdfunding
Novelty (Amit & Zott)	Social Benefits	Social character of project
Lock-In (Amit & Zott)	Environmental Benefits	Attractive tangible product
Complementarities (Amit & Zott)	Social Costs	Attractive voting rights
Efficiency (Amit & Zott)	Environmental Costs	Feasibility, strong team
Profitability indicators (Osterwalder & Pigneur, 2010)	Financial Goals	Network-based BM
	Environmental Goals	Required funding amount
	Social Goals	High likeability for many people

3.5 Method of Analysis

The analysis of the questionnaire data shall not only test whether the suggested BM is suitable and convincing but also reveal areas for improvement. The applied BM and evaluation framework shall also enable practitioners (especially educational game designers) to apply this method to test their own BMs, which may deviate from the suggested one, amongst others due to differences of the respective games. Accordingly, the data analysis method of this research should be applicable by practitioners such as entrepreneurs, even though they may not have academic knowledge, statistical expertise or a lot of time.

Qualitative interviews to be coded are thus not suitable because they require a lot of time and expertise. Complicated statistical data analysis with SPSS is not practicable for practitioners for the same reasons. These methods are not necessary either because it shall not be investigated whether the BM is valid or true but whether it will work.

Therefore, a Likert scale questionnaire is very suitable because the data collection is not time-intensive as in the case for qualitative interviews. Furthermore, in the data analysis simple average and median values can be calculated for every respondent per area and be aggregated across respondents. This approach shows which areas were highly positively and which ones were very negatively rated by respondents. Practitioners need little time, and only little knowledge of a spreadsheet application.

4 Results

The analysis of the results of the evaluation by the questionnaire respondents revealed interesting findings for the BM.

In the following, very low or high rated areas and single items within areas are identified and discussed. In table 3 the results are aggregated as average values and averages of median values of the respective single items for every area. The detailed results for all items can be found in table 6 in the appendices.

The higher the values, the more valid an item is evaluated for the suggested BM. This means that the higher the values, the more convincing the value proposition, the suitability for crowdfunding and the alignment to the founder's goals etc. are according to the questionnaire respondents.

Table 3: Aggregated questionnaire results per area

10 = strong; 1 = weak		
Integrated Business Model Evaluation	Average Values	Median
Core Business Model Canvas Components	6.8	6.9
Value Proposition Assessment	7.4	7.3
Cost/Revenue Assessment	6.6	6.9
Infrastructure Assessment	6.6	7.0
Customer Interface Assessment	6.5	6.5
Suitability for Crowdfunding	6.4	6.5
Feasibility and Expected Quality	6.1	6.0
Attractiveness of Crowdfunding Campaign to Supporters	6.7	6.7
Network reach	6.3	7.0
Alignment to the Founder's Goals (triple-bottom)	6.4	6.8
Alignment to the Founder's financial goals	5.3	6.0
Alignment to the Founder's social and environmental goals	7.5	7.5
Business Model Value Creation Factors (Amit & Zott, 2001)	6.7	7.0
Novelty (new transaction structures, new transactional content, and new participants, connecting previously unconnected parties)	7.6	8.0
Lock-in for partners & customers (switching costs via loyalty programs, dominant design, trust, and customization)	5.5	6.0
Complementarities (between products and services customers (vertical vs. horizontal), between online and offline assets, between technologies, and between activities)	6.6	7.0
Efficiency (low search costs, a broad selection range, symmetric information, simplicity, speed and scale economies)	6.8	7.0

Weakest areas

For the four BM canvas areas three are rated almost equally on average, namely costs and revenues with 6.6, infrastructure with 6.6, and customer interface with 6.5. However, the customer interface, which deals with channels, had the lowest average median with 6.5. Thus, the channels should be improved.

The suitability for crowdfunding was evaluated a 6.4 on average, which may be mediocre to good.

The average rating for the alignment to the founder's financial goal was mediocre with 5.3. Therefore, this BM may create a low stable income but the respondents were not clearly convinced of it.

Strongest Areas

Within the core BM elements, the value proposition area was clearly rated best with 7.4. Furthermore, the average ratings for the “Alignment to the Founder's Social and Environmental Goals” and the overall “BM Value Creation Factors” were quite high with 7.5 and 6.7 respectively.

Weakest items

The weakest items within the cost and revenue part were the margins (5.2), the predictability of revenues (5.2) and “We collect revenues before we incur expenses” (4.6). This uncertainty may result from both the novelty of the BM, and from the lack of a track of record of the founding team. The low predictability of revenues may stem from the novelty of the BM. The initial expenses before revenue collection call for the use of crowdfunding because crowdfunding reduces the financial risk. Then, this cost structure may be tolerable. In contrast, the low rating for margins should be addressed in recommended refinements of the BM.

Within the infrastructure items, the ratings for “We deploy key resources in the right amount in the right time” and “Balance of in-house versus outside execution is ideal” are lowest with 5.8 respectively. However, the item “We are focused and work with partners with necessary” was rated clearly highest with 7.9. Thus, one can conclude that the outsourcing is rather too dominant and more in-house execution may be better. For a freemium or multi-sided platform, the platform is the

core asset (Osterwalder & Pigneur, 2010) and core assets should be developed in-house. Otherwise, the successful launch of a company depends highly on the reliability of partners. Hence, the development of the platform should be done in-house if possible, but it requires a team with strong technical skills.

For the customer interface management, the item “Relationships bind customers through high switching costs” was clearly the lowest rated one with 5.2. It means that players and firms can easily quit the relationship due to little switching costs. Furthermore, the channels' effectiveness was assessed low (6.2). Therefore, more aggressive marketing might be necessary.

Within the four BM value creation factors, the lock-in for customers was clearly rated the lowest with 5.5. This is in accordance with the results concerning identified low switching costs of customers and partners. Since this BM relies strongly on partners, the lock-in has to be improved by a refinement of the BM.

Strongest items

The strongest items were strong economies of scale (7.8), the item “Our pricing mechanisms capture full willingness to pay” (7.8) the cooperation with partners (7.8), the partner network for a crowdfunding campaign (median of 8.0), the likeability of the overall project (7.7), the very good alignment to the founder's social (8.3) and environmental goals (8.2), and the BM was rated as very novel (7.6).

Summary

Overall, the BM seems very novel, offers a strong win-win-win value proposition to players, companies and donation platforms, is suitable for crowdfunding, and it is well aligned with the founder's social and environmental goals. However, the profitability is doubted by the respondents, which is partly due to the revenue configuration, and especially due to too low switching costs of customers and partners. Furthermore, the feasibility of this BM is low for the founder, at least with the current set of resources, namely no complete team.

Refinements

In the following, a few suggestions for the refinement of the BM are suggested while taking into account the revealed weaknesses in the assessment.

The revenue configuration might be improved by opening the platform with the interface linking the game, the firms and the donation platforms to outside game developers. The development of the online platform is expensive, occurs before revenues can be collected but inclines few costs afterward. This cost structure can be exploited more efficiently by allowing outside game developers to offer their educational games on the platform. Licensing or commission fees from this strategic move can considerably increase revenues with little additional costs and also augment switching costs of all parties involved: the players can play several games with the same innovative BM with only one account and do good while playing; firms and donation platforms have less incentive to quit the cooperation because much more players can be acquired with such a BM. Furthermore, firms can choose the game that best matches their communication aims.

A minor improvement of the revenue configuration and the creation of lock-in for players is to give away the more decorative in-game items to players the more victory points and thus game money

they collect over time. This motivates the players to continue playing because some direct feedback is given and permanently visible in the decorative features of the players' avatars. Furthermore, the premium subscription could not only include game statistics but also the opportunity to get a bigger avatar (eg. 30 % bigger), and opportunities to show off by special gestures. Such a configuration creates synergies between the game-money and real-money features as suggested in the literature (Oh & Ryu, 2007). The more decorative in-game items a players gets for free over time, the more attractive a subscription model becomes because it allows a player to show off the chosen and collected decorative in-game items and so express the player's virtual identity to other players. Moreover, a subscription premium account allows improving the playing skill due to personal game statistics and gain more victory points which allows collecting further decorative in-game items more quickly. The players' feeling of having built something over time can create significant sunk costs (time) and prevent players from switching to other games or from stopping playing. Although this effects seems paradox, a player spending more time with a game despite a switching tendency due to time sunk costs is well observed for social games (Schmitt, 2012).

A refinement could be the introduction of further channels to reach customers. The reliance on viral marketing may be dangerous because it makes the business dependent on Facebook's terms of use, which have been changing quite frequently (Williams, 2011). Some money should be invested in active marketing as well to acquire players, especially in the beginning. Advertisements could be run on LOHA and gaming websites. Furthermore, PR can be used as a cheaper means to get further attention.

These recommendations should be reevaluated because even small changes in one part of a BM can lead to major consequences in the overall BM due to trade-offs.

The new suggested BM including opening the platform for outside educational game developers means a shift from a BM in between a multi-sided platform and freemium model to a mainly multi-sided platform linking game developers, firms, players, and donation platforms. In the very beginning it might be wise or even necessary to offer one or even two games oneself to showcase the feasibility but later these own games play a minor role in the BM.

The refined BM was evaluated by six respondents who had already evaluated the preliminary BM. In table 4, the results of the evaluation of the refined BM, also in comparison to the previous evaluation of the preliminary BM by the same six respondents, are summarized. The detailed comparison of these two evaluations for all items can be found in table 7 in the appendices.

Table 4: Comparison of the first and the second evaluation

Comparison of 1st and 2nd evaluation	10 = strong; 5 to 6 = medium; 1 = weak	
	1st evaluation	2nd evaluation
	Average	Average
Core Business Model Canvas Components	6.8	6.9
Value Proposition Assessment	7.6	7.6
Cost/Revenue Assessment	6.6	6.5
Infrastructure Assessment	6.4	6.5
Customer Interface Assessment	6.7	7.2
Suitability for Crowdfunding	6.7	6.5
Feasibility and Expected Quality	5.7	5.4
Attractiveness of Crowdfunding Campaign to Supporters	6.7	6.7
Network reach	7.3	7.1
Alignment to the Founder's goals (triple bottom line)	6.8	7.1
Alignment to the Founder's financial goals	6.2	7.0
Alignment to the Founder's social and environmental goals	7.3	7.3
Business Model Value Creation Factors (Amit & Zott, 2001)	6.7	7.2
Novelty (new transaction structures, new transactional content, and new participants; connecting previously unconnected parties)	8.0	6.7
Lock-in for partners & customers (switching costs via loyalty programs, dominant design, trust, and customization)	5.5	7.3
Complementarities (between products and services customers (vertical vs. horizontal), between online and offline assets, between technologies, and between activities)	6.7	7.8
Efficiency (low search costs, broad selection range, symmetric information, speed and scale economies)	6.7	6.8

The comparison of the evaluation of the preliminary BM and of the refined BM reveals that the BM is perceived less novel but respondents see much more lock-in and more complementarities than before. This reflects the shift from a BM that based on the production of creative content, namely games, to a more multi-sided platform BM that focuses on hosting educational games with a similar BM, additionally to creating own games. Although the novelty was perceived much lower than in

the previous evaluation, the rating was still quite high. Furthermore, the increases in the assessments of the lock-in and the complementarities clearly exceed the decrease for novelty.

The BM blocks were rated similarly as before, only the customer interface was judged much more positively, mainly due to higher ratings for the switching costs for customers and partners and for the improved channel effectiveness.

The evaluation of the suitability for crowdfunding declined slightly because of the required funding amount, a less social perception of the project, and a lower overall likeability of the initiative. The reasons may be the stronger focus in the BM on monetization and a lower emphasis on producing creative content. However, the overall rating for the crowdfunding suitability is still good (6.5) and the BM may be sufficiently aligned to crowdfunding requirements.

The alignment to the founder's goals improved considerably due to a better alignment to the founder's financial goals. This finding coincides with higher ratings for margins and profitability in the second evaluation in comparison with the first evaluation. Interestingly, the chances for this startup to survive dropped from 6.8 to 6.2, but the ratings for the startup to generate a stable income, to highly grow and to quickly gain value for an exit rose by 0.8, 0.8 and 1.0 respectively. The lower rating for survival may result from higher costs and an augmented complexity of the project.

The new BM improved in all evaluation areas except for its crowdfunding suitability. Especially with regard to the general BM value creation factors, it seems much more balanced. The minimum average value is 6.7 for novelty in the second evaluation round. In contrast, the minimum value for the general BM success factors was 5.2 for lock-in in the first evaluation round. Lock-in is very important for such a network-based BM and therefore such a low rating for lock-in was not

tolerable.

The lowest rating was for crowdfunding and is mainly due to the low feasibility because the founding team is still incomplete. It can be expected though that if a CTO/developer would join the team the rating for the feasibility and thus for crowdfunding would augment considerably.

5 Conclusion and Discussion

5.1 Discussion

5.1.1 Questionnaire

The questionnaire proved to be suitable to make risk-free and time-efficient BM experiments that are very much desirable for a manager (Osterwalder et al., 2005). The quantitative questionnaire covering all BM building blocks, the founder's goals and crowdfunding enables to balance different requirements between which there might exist trade-offs. For instance, the building blocks areas product innovation and customer relationship mainly contribute to maximizing revenues whereas a sound infrastructure management should minimize costs (Osterwalder, Lagha, et al., 2002). However, a stronger value proposition often goes along with higher costs.

There may be trade-offs for instance between the revenue model and the crowdfunding suitability item of sociality. By promising to donate a certain percentage of the revenues to charity, a firm can increase its sociality and so augment the suitability for crowdfunding but it may reduce its profits and may thus conflict with the founder's financial goals. These conflicting requirements can be balanced by running BM experiments using the suggested questionnaire.

Nonetheless, it might be advantageous to allow an open summary statement for every area, for instance concerning the value proposition or the infrastructure which can give further insights into why an area was rated low or high.

Overall, the questionnaire worked well though because it really helped to identify strong and weak parts and hence refine the BM. If one uses several iterations of the questionnaire, it allows small experiments to test how the overall assessment changes if one refines one part. Especially for such a novel, complex and network-based BM it is crucial to balance the value proposition to all important customers, partners and stakeholders.

5.1.2 Limitations

A significant limitation of this research is that most respondents knew both the author of this research and the BM at least somewhat. This may result in a positive bias in the assessment values.

This research was done following the approach of Design Research. In this research the analysis, design and evaluation phases of the regulative cycle were done. However, the implementation was not done in terms of implementing the BM to test if it really works in practice. From a practice point of view, this would be desirable. However, from a more theoretical point of view the BM is only the “the rationale of how an organization creates, delivers and captures value” (Osterwalder & Pigneur, 2010). If the BM were implemented and the firm failed it could be simply due to mistakes in the implementation and would thus not refute a sound BM. Accordingly, the missing implementation of the BM does not harm the results of this research.

An important limitation is the rather low number of questionnaire respondents. In exploratory research qualitative interviews are much more common to collect data than quantitative surveys.

Qualitative interviews are in-depths and conducted with few interviewees whereas quantitative questionnaires are not in-depth but collect data from numerous respondents and apply sophisticated statistics for the analysis. In this research, neither a high sample nor in-depth interviews nor sophisticated statistical analysis was done. This limits the generalizability. However, in Design Research it is not the intention to create a design that is valid or true and thus generalizable. The primary goal in Design Research is to create a design that works. Therefore, the applied approach is sufficient for this research.

Furthermore, the questionnaire used was not extensively tested before and the reliability and validity is uncertain. Hence, there is no guarantee that it measures what it is supposed to measure. Matching evaluation values for items concerning lock-in and switching costs hint at a reasonable reliability, though.

Due to the context dependent characteristics of Design Research conclusions may not be suitable for all sorts of educational games. Some educational purposes may aim at training specific behavior that one may not be able to train or learn with a rather simple round-based board-game style online game.

5.1.3 Further Research

Further research should test the suggested BM more extensively with more respondents, and experts from potential corporate sponsors or cooperation partners such as donation platforms. As soon as the founding team of MoRally is complete, a refinement of the BM with regard to own technical skills and more development inhouse should be designed and evaluated.

In accordance with Morris and Schindehutte (2005), more details can be added to the BM

eventually. These new versions of MoRally's BM can then be evaluated against the former versions.

Since the problem owner wants to launch further educational games and also host other game developers' educational games on the platform, an investigation of the application of this BM on other games should be conducted. MoRally's theme of Corporate Social Responsibility allowed to match the in-game advertisements closely to the content of the game. For other game themes, it might be more difficult to match the in-game advertisements to the content of the game. Moreover, games with other themes may require changes in some parts of the BM, such as the target customers.

5.2 Conclusion

A novel BM for educational games, namely a multi-sided platform to link players, firms, donation platforms, and educational game developers via a gamification donation mechanism was suggested and evaluated.

The creation of educational games that are both board and online games has various advantages: the online game facilitates the learning of the game play and augments sales of the board game. Since some online players may order the board game and show it to friends who get to know the board game but who didn't know the online game, some of these friends may try the online game and the number of people trying the online game increases. This can result in positive feedback and hence in a virtuous cycle (Shapiro & Varian, 1999) because there are synergies between the online and offline version. The combination of the online and offline game adds complementarities (Amit & Zott, 2011) to the BM such that the offline players value the board game more if they can learn the game rules in a convenient way and for free in the online game. Similarly, the opportunity to donate via partners' donation platforms increases the value of the online game for the players. Moreover,

the development and testing of the game mechanics can be done with a cheap board game prototype version first which can reduce the risks considerably. Only if the board game version is convincing and creates the intended pedagogic value one may proceed with the online development. If the board game version is not fun or does not create valuable learning experiences, the online game is not worth developing in the first place. Thus, this BM meets an important feature of a very good entrepreneurial BM design, namely risk minimization (Faltin & Ripsas, 2010).

Lock-in is enhanced in the proposed BM by buyer-seller trust and customization. Lock-in can be created by buyer-seller trust (Amit & Zott, 2001). By cooperating with high reputation partners such as a big donation platform and further game developers, trust between MoRally and potential corporate sponsors is improved. Lock-in is also augmented by customization (Amit & Zott, 2001). Players are motivated to customize their avatars which increases the switching costs to other game platforms.

Opening the platform for further educational games improves positive network effects. The value for one player is higher the more other players there are on the platform because this facilitates the matchmaking. If more games are offered on the platform, more players will be attracted and the number of players will rise. More players also raise the switching costs for sponsors and the donation platform because the sponsors can target more players and the donation platform obtains more donations.

At the same time this approach is a witty freemium model. Most online games offer the game for free but sell in-game items to 3-5% of the players and so need a very high amount of players to generate sufficient revenues. In contrast, this freemium model allows players to play the game for free online but the provider still earns money due to high-quality in-game advertising. Furthermore,

the board game can be sold to a few percent of new players by a high margin which equals a very high number of in-game items to be sold to one player in most online games. Accordingly, this BM allows targeting a niche with little competition because not a very high number of players is required for sufficient revenues. Educational game developers are constrained because they try to make a game both fun and educational. Hence, targeting a mass market is more difficult for them than for conventional game developers. Furthermore, the development of a turn-based board or card game-style online game is much less costly than most realtime online games. The relatively little initial costs and the opportunity to target a niche are two crucial features that make this BM especially suitable for educational game developers to compete successfully in the gaming market. It also facilitates the initial funding via crowdfunding due to relatively little costs, due to high overall likeability due to the donation aspect, and due to a tangible product, namely the board game that one give as a reward to crowdfunding supporters.

Table 5: BM features of MoRally that create value

Efficiency	Complementarities	Lock-In	Novelty
Players get to know firms' CSR efforts by playing	Online and offline game	Players can personalize avatars	Novel board-game style educational game about CSR
Players donate by playing	Players can donate for free	Several games on platform increase players' switching costs to other platforms	Main novelty relies on combination of complementary services such as playing, in-game ads and donations
Letting players choose the charity projects reduces firms costs and reveals stakeholder preferences with regard to CSR	Players can play “real companies” and see relevant in-game ads	This leads to lock-in for sponsors and donation platforms	
Companies can invite best players for job interviews (→ lower search costs for analytical personnel)	Open platform for outside game developers	Cooperating with high reputation partners increases trust	

Since 2006 Nintendo changed the video game console market with its Wii console that technologically does not bear comparison with competitors' consoles but still clearly outperforms them in sales (Osterwalder & Pigneur, 2010). Instead of competing in technological performance and powerful graphics it focuses on interaction and fun. With reference to this trend in the console market a similar approach was recommended for educational games: “Educational games need not replicate the expensive 3D graphics (...) This opens up new possibilities for lower budget and more innovative projects in this space” (Klopfer et al., 2009).

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7 Appendices

Table 6 includes all aggregated average and median values for all questionnaire items from 15 respondents of the evaluation of the preliminary BM suggestion for MoRally. Again, the higher the values, the stronger the respective item is evaluated (10 = max.; 1 = min.).

Table 6: All items of the evaluation of the preliminary BM

Integrated Business Model Evaluation	Average Values	Median
Core Business Model Canvas Components		
Value Proposition Assessment	7,4	7,3
Our Value Propositions are well aligned with customer needs	7,3	7,0
Our Value Propositions have strong network effects	7,5	8,0
There are strong synergies between our products and services	7,4	7,0
Cost/Revenue Assessment	6,6	6,9
We benefit from strong margins	5,2	5,0
Our revenues are predictable	5,2	6,0
We have recurring Revenue Streams and frequent repeat purchases	6,0	6,0
Our Revenue streams are diversified	6,4	7,0
Our Revenue streams are sustainable	7,2	8,0
We collect revenues before we incur expenses	4,6	5,0
We charge for what customers are really willing to pay for	7,5	8,0
Our pricing mechanisms capture full willingness to pay	7,8	8,0
Our costs are predictable	7,6	8,0
Our Cost structure is correctly matched to our business model	6,8	7,0
Our operations are cost-efficient	7,2	7,0
We benefit from economies of scale	7,8	8,0
Infrastructure Assessment	6,6	7,0
Our Key resources are difficult for competitors to replicate	5,8	7,0
Resource needs are predictable	7,8	8,0
We deploy key resources in the right amount in the right time	6,2	6,0
We efficiently execute Key Activities	7,1	8,0
Our Key Activities are difficult to copy	5,8	6,0
Balance of in-house versus outside execution is ideal	5,8	6,0
We are focused and work with partners with necessary	7,8	8,0
Customer Interface Assessment	6,5	6,5
Customer base is well segmented	6,8	7,0

Our channels are very efficient	6,5	7,0
Our channels are very effective	6,2	6,0
Our channel reach is strong among customers	6,8	7,0
Customers can easily see our channels	7,0	7,0
Channels are strongly integrated	6,3	7,0
Channels provide economies of scope	6,5	6,0
Channels are well matched to Customer segments	7,2	7,0
Strong Customer relationships	6,2	6,0
Relationship quality correctly matches customer segments	6,8	7,0
relationships bind customers through high switching costs	5,2	5,0
Suitability for Crowdfunding	6,4	6,5
Feasibility and Expected Quality	6,1	6,0
How high do you estimate the necessary initial funding?	5,7	6,0
To which degree do you think that the business model can be implemented with the current human resources of the founding team?	5,6	5,0
How "social" would this project in your opinion seem to crowdfunding users?	6,9	7,0
Attractiveness of Crowdfunding Campaign to Supporters	6,7	6,7
How attractive do you estimate the attractiveness of possible tangible products that one could give crowdfunding supporters?	6,3	7,0
How attractive do you estimate the attractiveness of possible active investments (voting rights, suggestion of new game elements etc.) that one could give crowdfunding supporters?	6,0	6,0
How high do you estimate the likability of the overall project?	7,7	7,0
Network reach	6,3	7,0
How large do you estimate the group of people who may be attracted to the project on crowdfunding?	6,0	6,0
How valuable do you think is the partner network for a crowdfunding initiative?	6,6	8,0
Alignment to the Founder's Goals (triple-bottom)	6,4	6,8
Alignment to the Founder's financial goals	5,3	6,0
How high are the chances for this startup to survive?	5,9	7,0
How high are the chances for this startup to generate stable income (even if rather low)?	5,3	6,0
How high are the chances for this startup to highly grow?	4,7	6,0
How high are the chances for this startup to quickly gain value for an exit?	4,2	4,0
Alignment to the Founder's social and environmental goals	7,5	7,5
How well is the described business model aligned to the founder's environmental goals?	8,2	8,0

How well is the described business model aligned to the founder's social goals?	8,3	8,0
How high do you rate the social benefits?	7,2	7,0
How high do you rate the environmental benefits?	6,5	6,0
How high do you rate the environmental costs?	2,3	2,0
How high do you rate the social costs?	2,9	2,0
Business Model Success Factors	6,7	7,0
Novelty comprises new transaction structures, new transactional content, and new participants (Amit & Zott, 2001). It often entails connecting previously unconnected parties (Amit & Zott, 2001). To which degree is the described business Model novel?	7,6	8,0
Lock-in creates value of BM by augmenting switching costs via loyalty programs, dominant design, trust, and customization in order to prevent “the migration of customers and strategic partners to competitors” (Amit & Zott, 2001, p. 506). To which degree does the described business Model create lock-in for customers and partners?	5,5	6,0
Value is driven by complementarities between products and services customers (vertical vs. horizontal), between online and offline assets, between technologies, and between activities (Amit & Zott, 2001). To which degree does the described business Model include complementarities?	6,6	7,0
Efficiency consists out of low search costs, a broad selection range, symmetric information, simplicity, speed and scale economies (Amit & Zott, 2001). To which degree is the described business Model efficient?	6,8	7,0

Table 7 includes all aggregated average and median values for all questionnaire items from 6 respondents for the preliminary and the refined BM of MoRally. The values for the preliminary BM are compared to the values for the refined BM. Again, the higher the values, the stronger the respective item is evaluated (10 = max.; 1 = min.).

Table 7: All items of the preliminary and refined BM

Comparison of 1st and 2nd evaluation	1st evaluation		2nd evaluation	
	Average	Median	Average	Median
Core Business Model Canvas	6.8	7.3	6.9	7.1
Components				
Value Proposition Assessment	7.6	8.0	7.6	8.2

Our Value Propositions are well aligned with customer needs	7.2	7.0	7.2	8.0
Our Value Propositions have strong network effects	8.0	8.0	8.0	8.5
There are strong synergies between our products and services	7.7	9.0	7.5	8.0
Cost/Revenue Assessment	6.6	7.5	6.5	6.5
We benefit from strong margins	4.8	6.0	6.0	6.0
Our revenues are predictable	5.3	6.0	5.5	5.5
We have recurring Revenue Streams and frequent repeat purchases	6.7	8.0	6.5	6.5
Our Revenue streams are diversified	5.5	7.0	6.5	6.5
Our Revenue streams are sustainable	7.5	8.0	7.0	7.0
We collect revenues before we incur expenses	5.2	6.0	3.8	4.0
We charge for what customers are really willing to pay for	7.5	8.0	7.3	7.0
Our pricing mechanisms capture full willingness to pay	8.0	9.0	7.0	7.0
Our costs are predictable	8.3	9.0	7.3	7.5
Our Cost structure is correctly matched to our business model	6.7	7.0	6.0	6.5
Our operations are cost-efficient	6.8	7.0	7.0	7.0
We benefit from economies of scale	7.0	9.0	7.8	8.0
Infrastructure Assessment	6.4	7.0	6.5	6.6
Our Key resources are difficult for competitors to replicate	5.5	7.0	6.0	6.5
resource needs are predictable	7.8	8.0	7.5	8.0
We deploy key resources in the right amount in the right time.	5.8	7.0	6.0	6.0
We efficiently execute Key Activities	7.0	8.0	6.3	6.5
Our Key Activities are difficult to copy	5.2	6.0	5.7	5.5
Balance of in-house versus outside execution is ideal	5.3	6.0	6.2	6.0
We are focused and work with partners with necessary	8.0	8.0	8.2	8.5
Customer Interface Assessment	6.7	6.7	7.2	7.2
Customer base is well segmented	7.3	8.0	7.3	7.5
Our channels are very efficient	6.3	6.0	7.0	7.0
Our channels are very effective	6.2	6.0	7.0	7.0
Our channel reach is strong among customers	6.7	7.0	7.2	7.0
Customers can easily see our channels	7.0	7.0	7.3	7.0
Channels are strongly integrated	6.8	7.0	7.0	7.0
Channels provide economies of scope	6.5	6.0	6.8	6.5
Channels are well matched to Customer segments	7.5	7.0	7.7	8.0
Strong Customer relationships	6.7	7.0	6.7	6.5

Relationship quality correctly matches customer segments	7.0	7.0	7.7	8.0
relationships bind customers through high switching costs	5.2	4.0	7.0	7.0
Suitability for Crowdfunding	6.7	7.3	6.5	6.4
Feasibility and Expected Quality	5.7	6.3	5.4	5.5
How "social" would this project in your opinion seem to crowdfunding users?	6.7	7.0	6.2	6.0
How high do you estimate the necessary initial funding?	5.3	6.0	5.0	5.0
To which degree do you think that the business model can be implemented with the current human resources of the founding team?	5.0	6.0	5.2	5.5
Attractiveness of Crowdfunding Campaign to Supporters	6.7	7.7	6.7	6.7
How attractive do you estimate the attractiveness of possible tangible products that one could give crowdfunding supporters?	5.7	7.0	5.7	5.5
How attractive do you estimate the attractiveness of possible active investments (voting rights, suggestion of new game elements etc.) that one could give crowdfunding supporters?	6.7	8.0	7.3	7.5
Network reach	7.3	7.5	7.1	7.0
How large do you estimate the group of people who may be attracted to the project on crowdfunding?	6.3	7.0	6.2	6.0
How valuable do you think is the partner network for a crowdfunding initiative?	8.2	8.0	8.0	8.0
How high do you estimate the likability of the overall project?	7.8	8.0	7.0	7.0
Alignment to Founder's Goals	6.8	6.6	7.1	7.1
Alignment to the Founder's financial goals	6.2	6.0	7.0	7.0
How high are the chances for this startup to survive?	6.8	8.0	6.2	7.0
How high are the chances for this startup to generate stable income (even if rather low)?	6.2	6.0	7.0	7.0
How high are the chances for this startup to highly grow?	5.3	6.0	6.2	6.5
How high are the chances for this startup to quickly gain value for an exit?	5.2	6.0	6.2	6.5

Alignment to the Founder's social and environmental goals	7.3	7.3	7.3	7.2
How well is the described business model aligned to the founder's environmental goals?	8.0	8.0	7.6	7.0
How well is the described business model aligned to the founder's social goals?	8.0	8.0	7.4	7.5
How high do you rate the social benefits?	6.7	7.0	7.2	7.0
How high do you rate the environmental benefits?	6.2	6.0	6.8	7.0
How high do you rate the environmental costs?	2.5	3.0	3.0	2.5
How high do you rate the social costs?	2.3	3.0	2.5	2.0
Business Model Success Factors	6.7	7.0	7.2	7.4
Novelty comprises new transaction structures, new transactional content, and new participants (Amit & Zott, 2001). It often entails connecting previously unconnected parties (Amit & Zott, 2001).	8.0	8.0	6.7	7.5
To which degree is the described business Model novel?				
Lock-in creates value of BM by augmenting switching costs via loyalty programs, dominant design, trust, and customization in order to prevent “the migration of customers and strategic partners to competitors” (Amit & Zott, 2001, p. 506).	5.5	6.0	7.3	7.0
To which degree does the described business Model create lock-in for customers and partners?				
Value is driven by complementarities between products and services customers (vertical vs. horizontal), between online and offline assets, between technologies, and between activities (Amit & Zott, 2001).	6.7	7.0	7.8	8.0
To which degree does the described business Model include complementarities?				
Efficiency consists out of low search costs, a broad selection range, symmetric information, simplicity, speed and scale economies (Amit & Zott, 2001).	6.7	7.0	6.8	7.0
To which degree is the described business Model efficient?				
