

Unravelling the entrepreneurial process: Exploring the role of business models in opportunity-creation

Master's Thesis

Justin Paul Johannes Wimmer

j.p.j.wimmer@student.utwente.nl

Public Version

March, 2016

Supervisors:

Dr. M.L. Ehrenhard
University of Twente

S.M. dos Santos Fernandes Costa
Northeastern University

K. Zittel
Technical University of Berlin

M. Dopfer
Alexander von Humboldt Institute for Internet and Society

Declaration of authorship

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Date

Justin Paul Johannes Wimmer

Abstract

Opportunities mark the starting point of any entrepreneurial journey. However, there is a lack of understanding of how they evolve into new ventures, and which activities occur along that path. This study proposes to use the business model concept to bridge that gap, arguing that an iterative BM design process gives specificity to the underlying opportunity itself, and thus enables the translation into operational actions. Building on findings from various emerging research streams at the intersection of entrepreneurship research and cognitive science, the major contribution of this study is a theoretical framework that illuminates this relationship, as well as how it triggers the creation of new ventures. Valuable insights from a multiple case study with founders of seven new digital ventures from Germany complement the data, and provide refinement to the framework. Overall, the study presents a novel perspective on the interaction of integral parts of the entrepreneurial process, which have not yet been thoroughly studied.

Keywords

Entrepreneurial process, individual-opportunity nexus, business model design, new venture creation, entrepreneurial cognition

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List of abbreviations

B2B	business-to-business
B2C	business-to-consumer
BM	business model
BMD	business model design
BMI	business model innovation
CRQ	central research question
CSM	case study method
CV	creation view
DV	discovery view
EdTech	education technology
EE	external enabler
EIV	evolving idiosyncrasy view
EP	entrepreneurial process
FinTech	financial technology
IO nexus	individual-opportunity nexus
NVI	new venture idea
OC	opportunity confidence
RBV	resource-based view
SaaS	software as a service
USP	unique selling point
VC	venture capitalist

1. Introduction

In recent years, entrepreneurship seems to have become the *talk of the town* in business. While the phenomenon itself is not new, Schumpeter's (1934) view of the entrepreneur as the principal driver of economic development may today be more striking than ever before. In the aftermath of the 2008 financial crisis and the ensuing global recession, there has been a boom in people leaving jobs in large companies—for both voluntary and non-voluntary reasons—to exploit new market opportunities and start their own ventures. In fact, the number of professionals employed in entrepreneurial roles has increased so dramatically, that in some countries, e.g. the US, the percentage of the workforce engaged in such activities is at an all-time high (Singer et al., 2015), and may soon comprise 100 million people worldwide (George & Bock, 2012). This “entrepreneurial revolution” (Kuratko et al., 2015, p. 1) has been fuelled by several factors, such as technological progress and the on-going digitalisation of the economy, globalised markets, venture capital availability, and a better access to entrepreneurship education, among others (Zwilling, 2013). The most palpable reflection of this trend may be the soaring startup valuations that can especially be observed in the tech industry, where companies such as Airbnb (hospitality), Snapchat (media), Stripe (payments), and Uber (transportation) have reached billion-dollar valuations, while being less than 10 years old (Austin et al., 2015). Such valuations indicate investors' expectations of future growth and returns, which are driven by the confidence that these startups can disrupt old businesses, drive industry transformation, and create new markets.

Given the increasing recognition of entrepreneurship—and innovation as one of its core functions (Drucker, 2002)—as a major stimulant for job creation and economic development (Amit et al., 1993), there has also been an increasing need to better understand entrepreneurship from a scientific perspective. The field of entrepreneurship research has gradually emerged over the last decades, moving

away from rather descriptive, highly fragmented findings from various related research domains, into what some scholars consider to be a distinct research field today. As such, the more recent academic work is increasingly process-oriented and allows for explanations of different aspects of the entrepreneurship phenomenon (Acs & Audretsch, 2010).

A major cornerstone of entrepreneurship theory is the opportunity construct, which “has become one of the main threads of literature” (Osiyevskyy & Dewald, 2014), and is seen as the primary driver of entrepreneurs’ actions (Shane & Venkataraman, 2000). As such, it has been argued that perceiving latent business opportunities can be considered the starting point of the entrepreneurial process (EP), which has extensively been linked to the individual entrepreneur—as the agent who drives the creation of a new venture—in the literature. Various researchers have investigated activities that occur along the EP, such as the discovery (e.g., Shane, 2000; Ozgen et al., 2007), evaluation (e.g., Ardichvili et al., 2003; Haynie et al., 2009), and exploitation (e.g., Choi & Shepherd, 2004; Mueller, 2007) of opportunities, as well as how they are recognised in different contexts (Costa et al., 2015). However, there is an inherent problem with much of the extant work in this field, as it lacks a common understanding of how opportunities actually come into existence. This study builds on a holistic approach to explore the interaction of opportunities and individuals, in order to provide clarity where prior work has been blurred by conflicting findings. Thus, it aims to create a fertile ground for adopting an opportunity-centric view on entrepreneurship in the digital space, from which novel perspectives on the creation of new ventures can emerge.

Opportunities themselves, however, are not businesses (Eckhardt, 2013). Entrepreneurs must find ways of how to transform opportunities into new ventures, which represents a core activity within the EP. Various scholars emphasise the role of the business model (BM) in this context, and note that the design of a coherent BM

configuration is essential for exploiting specific opportunities (e.g., Zott & Amit, 2007; Johnson et al., 2008; Schneider & Spieth, 2013). However, the BM concept is just as ambiguous as the opportunity construct itself – although it has attracted considerable attention from academics of various fields, some of its key characteristics remain opaque (e.g., Zott et al., 2011). Thus, this study intends to distil a workable perspective on the BM, which can be used to explore how such systems emerge in the course of the EP.

Further, while there is some consensus that the BM, in essence, links firms to opportunities (e.g., George & Bock, 2012; Eckhardt, 2014), the mechanisms by which these building blocks are interconnected remain largely unexplored (e.g., George & Bock, 2011; Guo & Yin, 2013). There are some scholars who investigate the relationship between opportunities and the adoption of new BMs, but do so by focussing on the specific case of large, established companies (e.g., Markides, 2006; Christensen & Raynor, 2013). Other research adopts a startup perspective, but examines mainly how opportunities shape preceding entrepreneurial processes, such as information seeking or decision making (e.g., Lang et al., 1997; Lucas et al., 2008). A promising way to advance the understanding of these interconnections is to view them through a cognitive lens (Fiet & Patel, 2008; George & Bock, 2011); which represents a research stream that has not yet received the academic attention it deserves. Thus, drawing on the notion of cognitive schemas or so-called mental models, this study aims to shed light on the mechanisms by which entrepreneurs design BM configurations from scratch – a question that has recently been raised by Amit & Zott (2015). In doing so, it also responds to the call by George & Bock (2011) to “identify layers of entrepreneurial activities between opportunity identification and organisational formation” (p. 106).

Hence, this study will revolve around the following, overarching research question:

How do entrepreneurs in the digital space transform vague opportunities into viable business models?

In order to better structure the subsequent analysis, the central research question (CRQ) will further be divided into four sub-questions:

- 1.) Which conceptual building blocks emerge from the extant literature to constitute this transformation process, and how can they be delineated?
- 2.) How can these building blocks be systematised and positioned within the EP?
- 3.) Based on observations of the phenomenon in entrepreneurial practice, how does the transformation process occur in the 'real world'?
- 4.) Which cognitive processes undergird the transformation process in practice?

It should be noted that question one and two are purely theoretical in nature, and will be tackled in the first part of the study. The purpose of that part is to identify and review the relevant literature, and develop a preliminary theoretical framework that can be used to guide the ensuing part of the study. Question three and four are empirical in nature, and will be tackled in the second part of the study. The objective of that part is to explore the phenomena under investigation in a real-life context, using rich data from observations, workshop transcripts, and interviews with founders of seven new digital ventures. The findings from the empirical part will then be used to direct refinements of the proposed theoretical framework.

2. Theoretical substantiation

This chapter provides an overview of the theoretical concepts that are central for a better understanding of the topic under investigation. As briefly touched upon in the introduction, the topic lies at the intersection of various emerging research streams related to the entrepreneurship literature, which are thus relevant to this study. However, due to the extensive amount of research that has been conducted on trending topics such as the BM concept, the following review is by no means exhaustive, but rather reflects those findings from the extant literature that are considered most useful for developing a sound theoretical framework.

2.1 Entrepreneurship as a process and the individual-opportunity nexus

According to Shane & Venkataraman (2000), entrepreneurship “involves [...] the processes of discovery, evaluation, and exploitation of opportunities; and the set of individuals who discover, evaluate and exploit them” (p. 218). As Costa (2015) has pointed out, there are three main assumptions underlying this definition, namely (1) that entrepreneurship can be viewed as a process; and (2) that opportunities as well as (3) individuals play a crucial role in this process. Shane (2003) has coined the term *individual-opportunity nexus* (IO nexus) to refer to this perspective, in which the EP is initiated when an individual—i.e., the entrepreneur—perceives an opportunity and subsequently attempts to exploit it (Eckhardt, 2013). The work of Shane & Venkataraman (2000) has had a huge impact on the entrepreneurship research field, as it has shifted the attention towards a more holistic perspective on the early stages of new venture creation, by embedding the entrepreneur in the surrounding environment and acknowledging important interrelations. Figure 1 illustrates this relationship.

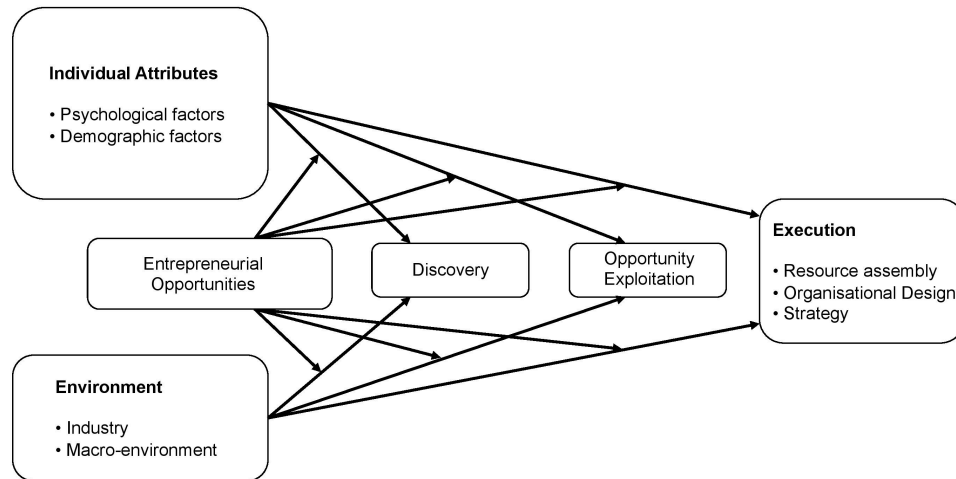


Figure 1. The individual-opportunity nexus (Shane, 2003).

Coming back to the notion of viewing entrepreneurship as a process rather than a single event, it can generally be noted that the EP evolves over time, moves through several distinct phases and is affected by different types of variables. As Baron & Shane (2008) have stated, there is general consensus among scholars that the process can be understood as being comprised of six phases, as well as three different levels of variables—namely individual-level, group level, and societal-level variables—which impact the events and outcomes in each phase (Figure 2). As such, it is the declared goal of the process perspective to render the distinction between a micro and macro approach to entrepreneurship obsolete.

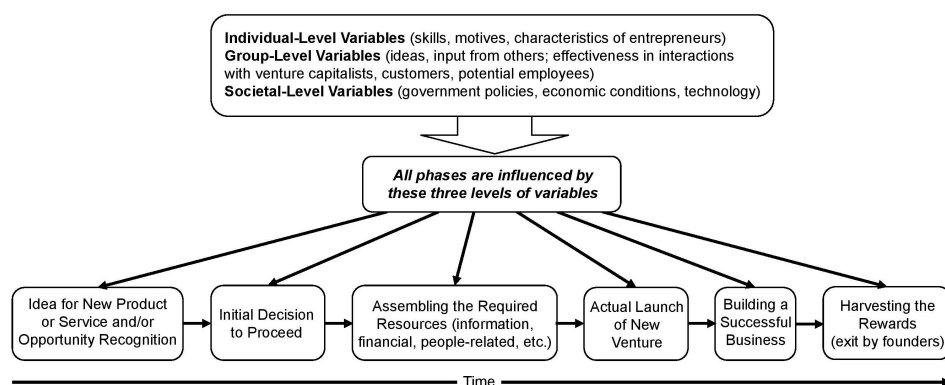


Figure 2. Entrepreneurship as a process (Baron & Shane, 2008).

It seems reasonable to assume that without opportunities, there would be no entrepreneurship (Autio, 2015). But despite the proliferation and usefulness of the opportunity-centric perspective outlined above, there is an on-going debate that revolves around certain aspects of the opportunity construct itself. As Davidsson (2015) has just recently presented in a critical review on the topic, there is a major lack of construct clarity that mainly stems from inconsistent, vague, or non-existing definitions of the term *opportunity* in the pertinent literature, which has led to the use of different constructs under the same label. Also, there are diverging views on the nature of opportunities, which comes down to the rather philosophical question whether opportunities do objectively exist, or are subjectively created, and how this influences the interaction between opportunities and individuals. Davidsson's (2015) review reveals three common views that differ concerning their interpretation of the IO nexus: the *Discovery View*, the *Creation View*, and the *Evolving Idiosyncrasy View*. To provide for a better understanding of the origin of these differences, all three perspectives shall briefly be discussed.

The *Discovery View* (DV) has its origin in the work of Shane & Venkataraman (2000) and thus can be considered the original logic underlying the IO nexus. Opportunities are seen as objectively existing, which necessarily implies that they are favourable and 'only' have to be discovered and exploited before another entrepreneur does so (Alvarez & Barney, 2007). In its most simple interpretation, this is because any case that is not (economically) promising in the first place, would not represent an opportunity at all. According to Davidsson (2015), this has the effect that the failure to enact a specific opportunity can only be explained by certain flaws of the individual, and not by inherent characteristics—or contents—of the opportunity itself, which thereby remain largely unknown. This seems indeed impractical, assuming that the purpose of the nexus idea is to analyse the interaction between the underlying two components.

The *Creation View* (CV), which is associated with the work of different scholars (e.g., Ardichvili et al., 2003; Alvarez & Barney, 2007), treats opportunities as both objective and subjective phenomena, formed by an existing market disequilibrium, but enacted due to the subjective perception of the entrepreneur (Alvarez & Barney, 2007). Consequently, proponents of the CV argue that opportunities do not exist independent of entrepreneurs, but only emerge through the individual's actions, which stands in contrast to the DV. Although intuitively appealing, Davidsson (2015) criticises that this view inherently suffers from the same conceptual flaws that the DV does, namely that it does not give an answer to what characterises the objective part of the opportunity, and how this can explain entrepreneurs' actions. The *Evolving Idiosyncrasy View* (EIV), which is rooted in the work of Sarason et al. (2006) and Dimov (2011), can be located at the other end of the spectrum, as it argues that opportunities cannot be separated from entrepreneurs at all, and thus are mainly subjective phenomena. According to this logic, an opportunity is a unique and rather vague idea, which then becomes increasingly tangible over time. In his review, Davidsson (2015) argues that the proclaimed inseparability of opportunities and individuals within this perspective renders the EIV unsuitable as a conceptualisation for the IO nexus, as it does not allow for an analysis of interaction effects at all.

2.2 Re-conceptualising the individual-opportunity nexus

In the light of the prevalent inconsistencies of what has previously been labelled entrepreneurial opportunities as well as the on-going debate around it, it seems as if any attempt to advance entrepreneurship research by using the IO nexus would inevitably suffer from the shortcomings of the mentioned perspectives. Hence, in order to increase the theoretical precision of the nexus idea and to better organise and delineate its core components, Davidsson (2015) suggests a fundamental re-conceptualisation of the IO nexus, which consists of three constructs—*External*

Enablers, New Venture Ideas, and Opportunity Confidence—that can potentially enhance clarity and contribute to a better understanding of the early aspects of the EP. Following, the single constructs will thus be outlined in more detail.

External Enablers (EEs) refers to temporary external circumstances—such as technological, demographical, or regulatory changes in the environment—which initiate new venturing attempts. As such, the construct mainly resembles the objective part of entrepreneurial opportunities as described in prior work. However, the difference is that EEs are not necessarily favourable in that they guarantee economic success, but whether they hold the potential to be turned into a viable business depends on many other factors, such as the right time, place, and application field. The assessment of such can be considered subjective, and implies that the favourability of an EE will only become fully apparent *ex post*—which essentially relates to the risk involved at this stage of the process. In line with the disequilibrium assumption mentioned before, the chance of applying distinct EEs to certain fields will—as economists put it—eventually be competed away, when a certain amount of individuals act to take advantage of them (Carden, 2010).

New Venture Ideas (NVIs) are “imaginary combinations of product/service offerings; potential markets or users, and means of bringing these offerings into existence” (Davidsson, 2015, p. 695), and a prerequisite for the new venture creation process. As the author articulates, NVIs are non-material due to their cognitive nature, which locates the construct within the mind of the entrepreneur. However, this does not imply that a NVI is bound to a distinct individual, in that it cannot be separated from that person, as has been claimed by the EIV. That is because it is certainly possible that different people simultaneously come up with nearly identical business ideas, without knowing about each other (Verstraete & Jouison-Laffitte, 2011). In this logic, there are distinct characteristics that can be attributed to a particular NVI, which Davidsson (2015) labels *contents*. Such contents are mobile in

that they can be communicated to other individuals in order to test the prospects of a NVI. However, the construct clearly delineates the contents from their evaluation, and hence excludes the aspect of favourability. That means that a NVI can both be good or bad in terms of its prospects. As Davidsson (2015) points out, the NVI construct shows resemblance with what has previously been labelled opportunity recognition, identification, or discovery, but is limited to the content part of such constructs.

Opportunity Confidence (OC), as opposed to the contents described above, solely refers to “individuals’ evaluation of External Enablers and/or New Venture Ideas” (Davidsson, 2015). That is to say that although there cannot be a new venture creation process without a NVI, the NVI can very well exist without the occurrence of an EE. Hence, depending on the type of stimulus that initiates the process, OC includes the favourability assessment of an independent idea, or an idea embedded in a changing environment. As such, the construct is highly subjective, as the evaluation is contingent on an individual’s perception, which—in turn—is influenced by his or her own resource base (Davidsson, 2015). According to Helfat & Martin (2015), such resources comprise human capital (knowledge and experience), social capital (network of social relationships), and managerial cognition (mental models and managerial beliefs), which can differ greatly across individuals. Thus, given this diversity, two potential entrepreneurs might differ completely in their evaluation of the attractiveness of one and the same EE and/or NVI. The OC construct describes a crucial step within the EP, as an individual will only decide to take action when (s)he is confident that there is, in fact, an *opportunity* that can be exploited. However, it should be noted that OC might vary over time, when an initially promising idea loses some of its attractiveness or even lead to the termination of a new venturing attempt. (Davidsson, 2015)

To sum up, Davidsson's (2015) re-conceptualisation of the IO nexus—which is illustrated in Figure 3—appears to be a promising foundation to advance an opportunity-centric view on the EP. Through its clear composition, it eliminates many of the overlaps and inconsistencies between different constructs and schools of thought, which have previously caused confusion within this specific research field. Taking contextual, individual, and cognitive factors into account, it provides a more holistic perspective that integrates important yet scattered findings from different fields of study, which makes it a good starting point for addressing the identified research gap. Therefore, it will be used in the further course of this study to systematise the initial part of the EP, which can be considered crucial in order to shed light on subsequent steps on the journey of bringing a new digital venture into existence.

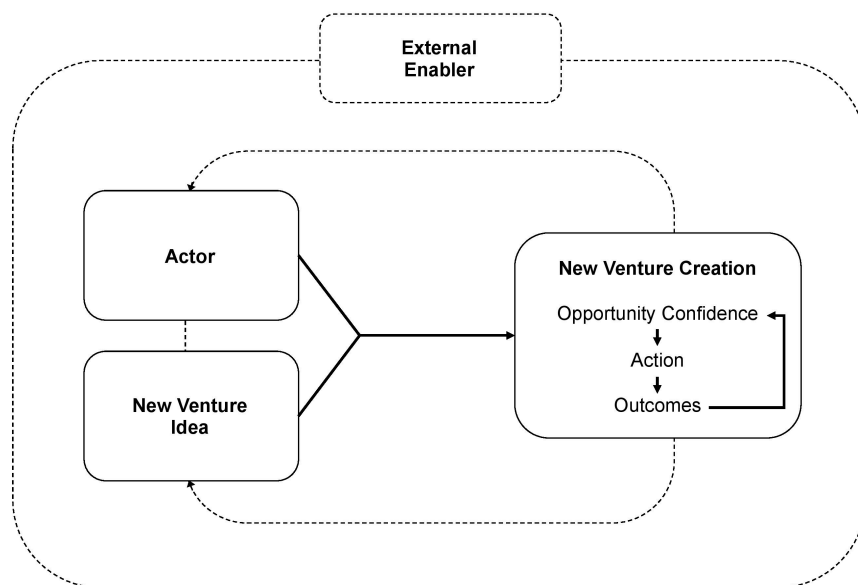


Figure 3. Re-conceptualisation of the individual-opportunity nexus (Davidsson, 2015).

2.3 The business model concept

While the previous suggestions provide more clarity in terms of the opportunity construct, it is important to note that opportunities themselves are not businesses. To build businesses, “entrepreneurs [...] must successfully design business models that exploit specific opportunities” (Eckhardt, 2013). That is in line with the argumentation up to this point, as an opportunity remains a purely theoretical undertaking, when described as comprised of EEs, NVIs, and OC. Hence, in order to gain a better understanding of how entrepreneurial opportunities in the digital space become tangible realities, this study follows Eckhardt (2013), who proposes to integrate the literature on business models (BM) with the IO nexus. The following review will illuminate the most interesting aspects of the BM concept that emerge from the academic landscape.

In recent years, the BM concept has been subject to substantial study among academics of various disciplines, which has resulted in an explosion of scientific work that addresses the notion in some kind (Zott et al., 2011). Conducting a simple search query that uses the term in the title column of Google Scholar, results in 8,150 articles only for the time between 2000 and 2015. Several special issues in leading scientific journals, as well as recent publications in top-tier management magazines reflect how prevalent the BM concept has become among academics and business practitioners alike. Despite the increasing attention, the concept still lacks clarity in terms of a sound theoretical framework, as there is yet no clear consensus on what a BM actually is (Zott et al., 2011). However, there seems to be some common ground at least regarding certain distinguishing characteristics, which help to better delineate the concept and approximate its contents. In general, scholars seem to agree that the BM is a new unit of analysis (e.g., Lecocq et al., 2010; Zott et al., 2011) that depicts the logic of how firms do business (e.g., Amit & Zott, 2010; Teece, 2010; Gassmann et al., 2013). Another recurring pattern is the notion of *value creation* and

value capture; two dimensions that can be found across the work of many of the leading scholars in this field (e.g., Casadesus-Masanell & Ricart, 2010; Teece, 2010). This points towards a rather broad definition of the concept as in Osterwalder & Pigneur (2010), who define a BM as “the rationale of how an organisation creates, delivers, and captures value” (p. 14).

Amit & Zott (2010) acknowledge this focus, while developing a more precise perspective that views BMs as so-called *activity systems*. The activities within such a system are “the engagement of human, physical and/or capital resources of any party to the business model” (Zott & Amit, 2010, p. 217), which incorporates the interdependencies between a focal firm, and the external entities that enable this firm to do business—such as partners, suppliers, customers, etc.—as critical components to consider. As Demil et al. (2015) have just recently pointed out, such a holistic view on the firm is consistent with traditional management theories such as the resource-based view (RBV), which considers the application of a bundle of valuable resources at a firm's disposal as the ultimate source of competitive advantage (e.g., Barney, 1991). In line with the definition of Amit & Zott (2010), it can thus be argued that resources are essentially “at the heart of any business model” (Demil et al., 2015, p. 3), as they enable specific configurations of activities. This has important implications for the on-going debate about the distinction and relationship between BMs and business strategy (e.g., Mansfield & Fourie, 2004; Teece, 2010): a (re)configured set of activities can yield a robust BM design that is particularly difficult to imitate when it leverages a self-reinforcing system architecture (Milgrom & Roberts, 1995), which strengthens a firm's competitive advantage. According to Demil et al. (2015), it is in this logic that the BM concept can act as a link to reconnect entrepreneurship, which is mainly about value creation, with strategy, which is mainly about value capture. As such, the BM also plays a complementary role in examining the integration of these two fields, which is an

emerging concept known as *strategic entrepreneurship* in the literature (e.g., Hitt et al., 2001; Kuratko & Audretsch, 2009).

As a function of the multitude of existing definitions that try to capture the BM concept as a whole, the literature also differs regarding the major elements that comprise a BM. Although the number and type of elements varies widely between scholars, it becomes apparent that even the more extensive frameworks—such as the BM canvas by Osterwalder & Pigneur (2010)—provide a large number of building blocks, only to refine a few elements that constitute the essentials of how a firm does business. Following this view, Frankenberger et al. (2013) developed a simplified BM conceptualisation that consists of four central dimensions that occur across most of the prevalent concepts in the literature, which they label the *Who*, the *What*, the *How*, and the *Why*. As the authors argue, such a systematisation reduces complexity, while being “exhaustive enough to provide a clear picture of the business model architecture” (Frankenberger et al., 2013, p. 252). This makes it a more workable model for research purposes as well, which is why it will be employed throughout the further course of this study. The single elements will briefly be described below.

The *Who* refers to the target customer, who can be considered the centrepiece of every BM. Identifying the right market, defining customer segments and understanding their needs, is crucial for a BM to function.

The *What* refers to the value proposition, which comes down to the products/services that a firm offers to its target customers. They can be considered valuable if they cater to the customers’ needs.

The *How* refers to the value chain, which describes the orchestration of resources and capabilities to perform the activities that are needed to put the value proposition into effect. That includes the coordination with partners, suppliers, etc.

The *Why* refers to the profit mechanism, or revenue model, of the firm. It specifies the rationale of how to capture some of the created value, by plotting revenue-generating mechanisms and cost structures next to each other.

Gassmann et al. (2013) unite these four dimensions in a so-called *magic triangle* (Figure 4), which depicts the BM as a system of interdependencies in which all elements affect each other. In the authors' logic, modifying one of the corners of the triangle automatically requires to bring the other two corners back into balance, by refining them until a coherent system emerges. Through the interplay of target customer, value proposition, value chain and profit mechanism, it can thus be illustrated how a firm creates, delivers, and captures value.

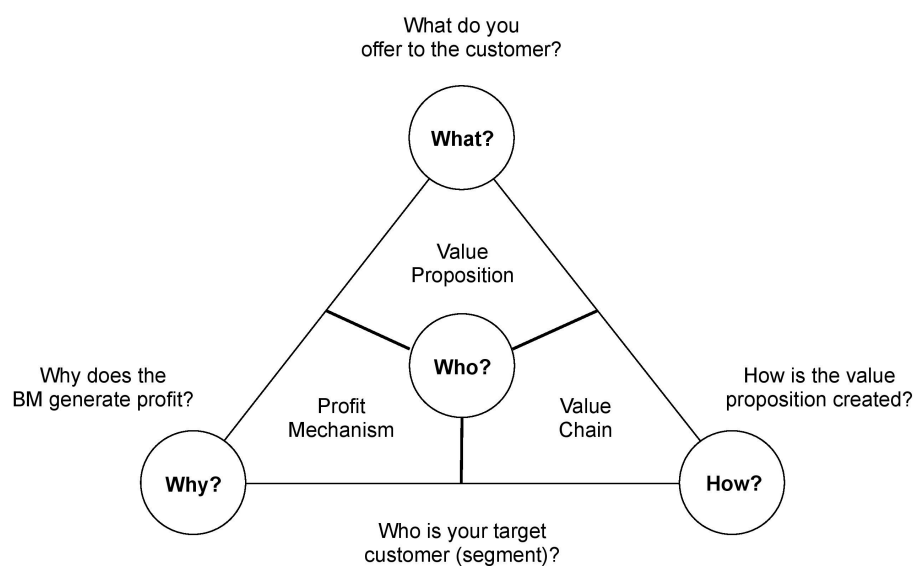


Figure 4. The magic triangle of a business model (Gassmann et al., 2013).

In essence, it can be noted that the BM links firms to opportunities, in that it defines the adequate organisational structure to enact a specific opportunity (Eckhardt, 2014). Thereby, the BM becomes another core building block of the EP (George & Bock, 2011), positioned further downstream between opportunity identification and organisational formation. However, while the BM is increasingly conceptualised as

an opportunity enactment mechanism, little is known about how opportunities and BMs are interconnected (Guo & Yin, 2013). A promising way to advance the understanding of this relationship could be to examine how BMs actually emerge. This applies all the more so, as the crafting—or design—of BM configurations is increasingly considered a key task in the process of bringing new ventures into existence (e.g., Trimi & Berbegal-Mirabent, 2012). Therefore, it appears useful to draw on the design literature to further explore this realm.

2.4 Creating opportunities through business model design

Much of the work that has been published in the field views the BM as a rather static blueprint, which depicts how a company does business at a specific point in time (e.g., Chesbrough & Rosenbloom, 2002; Lindner et al., 2010). However, such a ‘snapshot’ perspective (Cavalcante et al., 2011) neglects that BMs, in fact, are dynamic systems that continually change (Afuah & Tucci, 2000). As Teece (2010) recognises, the ‘right’ BM is often not apparent up front, which renders most early-stage BMs provisional, and demands continuous learning and adjustment in order for an appropriate model to emerge. Blank & Dorf (2012) go so far as to describe the search for a repeatable and scalable BM as the *raison d’être* of any startup; a process which is claimed to consist of two main stages (Blank, 2006). First, there is an iterative BM design stage, in which several hypotheses about target customers, product/service offerings, value chain, and revenue model—i.e., the single elements of a BM—are being tested. Typically, this happens in a dynamic trial-and-error manner, and sets the structural boundaries of a firm (Trimis & Berbegal-Mirabent, 2012). Once the right configuration is found, the BM can then, in a second stage, be applied and scaled (Blank, 2006). Consequently, *business model design* (BMD) can be understood as “the design of an organization’s boundary-spanning transactions” (Zott & Amit, 2007), and as a process characterised by extensive experimentation (Chesbrough, 2010). As such, it is a discovery driven task in a highly uncertain

situation, in which entrepreneurs often employ an effectual decision-making logic (Sarasvathy, 2001). This has important implications for the opportunity-centric framing of the BM, as “effectuation creates actions based on the initial results of experiments, generating new data which may point towards previously latent opportunities” (Chesbrough, 2010, p. 362). Hence, the iterative modifications that occur in the BMD process ultimately give specificity to the underlying opportunity itself (George & Bock, 2011).

Despite the fact that specific BM configurations can emerge both implicitly and explicitly in practice (Teece, 2010), it has been argued that BMD is as a crucial task for any entrepreneur (Zott & Amit, 2007), especially in the digital space. That is because startups in a rapidly changing environment are under increasing pressure to find the right model to profitably exploit a business opportunity, as an entrepreneurial loss quickly leads to the failing of a new venturing attempt. In contrast to the static approach, the so-called transformational approach acknowledges these dynamics, and tries to capture how BMs evolve over time (e.g., Demil & Lecocq, 2010; Sosna et al., 2010). As such, it allows for an analysis of how BMs are designed, changed, and innovated in the course of the EP. Given the importance of BMD for entrepreneurs, Zott & Amit (2010) suggest two sets of parameters that need to be considered when aiming to create a coherent activity system, namely *design elements* and *design themes*. The first set refers to the *content*, *structure*, and *governance* of a BM, and hence describes its system architecture. As such, it is concerned with the different activities that comprise the system, how they are interconnected, and who performs them. The second set of parameters refers to *novelty*, *lock-in*, *complementarities*, and *efficiency*, and specifies the mechanism by which the BM creates value. Hence, it is concerned with how the different design elements can best be orchestrated according to one of the distinct design themes that have just been mentioned. (Zott & Amit, 2010)

In this context, *novelty* has received particular attention in the extant literature, and has been denoted as the BM design theme with the most robust performance implications (Zott & Amit, 2007). Novelty-centred activity systems can either be based on a recombination of existing resources that culminate in a new design, or on the adoption of entirely new activities by harnessing the resources of other parties to the BM—such as partners, suppliers, customers, etc. (Zott & Amit, 2007; 2010). Overall, this highlights the role of BMD as a source of innovation, which has come to be known under the term *business model innovation* (BMI) in the literature. BMI can broadly be defined as “the search for new business logics of the firm and new ways to create and capture value for its stakeholders” (Casadesus-Masanell & Zhu, 2013, p. 1), which is consistent with the preceding view on the BM itself. The concept has increasingly gained traction in recent years, as it extends the application field for innovations to a new subject that goes beyond new product or service offerings (Hamel, 2000; Mitchell & Coles, 2003). This distinction is important to make, as BMIs “arise in different ways, have different competitive effects, and require different responses from incumbents” (Markides, 2006, p. 19) than other types of innovations. In addition, BMIs can induce strong complementary effects, when combining them with new products and technologies. In fact, Chesbrough (2010) argues that this combination is so powerful, that “a mediocre technology pursued within a great business model may be more valuable than a great technology exploited via a mediocre business model” (p. 355).

Another aspect that is worth mentioning, is that much of the work that acknowledges the transformational nature of the BM, addresses the matter from the perspective of an incumbent firm, which has to change an existing BM due to exogenous pressures such as technological or regulatory shocks (e.g., Teece, 2010; Aspara et al., 2011; Osiyevskyy & Dewald, 2015). Some scholars suggest, however, that incumbent and entrepreneurial firms approach BMD differently. That is because entrepreneurial firms are less constrained by path dependencies, but suffer from an

inherently scarce resource base. Thus, an entrepreneur is simply more flexible to design an entirely novel BM, as (s)he is free of established thinking patterns – the so-called dominant logic (Prahalad & Bettis, 1986). Therefore, it is assumed that entrepreneurs tend to draw on novelty as the main source of value creation in their BMDs (Amit & Zott, 2001). At the same time, they cannot afford excessive experimentation with multiple BMs, as they lack the necessary resources (Bohnsack et al., 2014). Hence, as Martins et al. (2015) have just recently pointed out, there lies great potential in understanding how BMs can be designed in absence of exogenous change, which will be explored in the empirical part of this study.

With respect to the opportunity-centric framing of the BM, which serves as the common theme in this study, Zott & Amit (2007) note that through an innovative design, a BM can exceed its mere function as a tool for opportunity exploitation, by actually becoming part of the opportunity-creation process itself. This relatively undeveloped research stream views the BM as “a facilitative intermediary” (George & Bock, 2011, p. 88) in the process of bringing a new venture into existence, and represents a perspective that is especially salient among practitioners. That has been demonstrated in an inductive study by the latter authors, who surveyed 182 managers to investigate what BMs are to them. Based on a discourse analysis, they conclude that the respondents emphasise “the relevance of opportunity in the business model construct” (George & Bock, 2011, p. 99), while particularly focussing on aspects of opportunity enactment, such as setting up goals and activities to direct entrepreneurial action. Hence, BMs can be understood as sophisticated conjectures (Eckhardt, 2013), wherein the latter represents “a conceptualisation that exists in the mind of an individual about a specific opportunity” (Eckhardt & Ciuchta, 2008). That elucidates the intersection between the BM concept and the IO nexus, as Davidsson’s (2015) re-conceptualisation explicitly captures the notion of entrepreneurial conjectures through the OC construct. Following this line of reasoning, it can be argued that the function of BMD is more than just the crafting of

an activity system configuration, in that the design process reveals new aspects of the underlying opportunity itself and helps to develop it further. Exploring this interaction is crucial for understanding how entrepreneurial opportunities in the digital space evolve into actual businesses.

In order to complement the picture that has emerged from the review of selected BMD literature, it appears worthwhile to include Martins et al. (2015), who contrast three prevalent perspectives that differ in their understanding of how individuals design BMs. In the *rational positioning view*, BMD is seen as a purposeful process that reflects rational and rather strategic choices, which are contingent on environmental changes. The *evolutionary view* emphasises the role of experimentation in the BMD process, which demands continuous fine-tuning and adjustment to improve the fit of the BM with an uncertain and changing environment. And the *cognitive view* sees the BM as a reflection of managerial schemas, or so-called mental models, that organise understandings about the design of a firm. Given that cognitive aspects are considered to play an important role throughout various stages along the EP (e.g., Baron & Ensley, 2006; Haynie et al., 2009; Cavalcante et al., 2011), it seems promising to include the cognitive view on BMD in this review.

2.5 Entrepreneurial cognition

Generally speaking, the cognitive perspective refers to the mental representations and processes that serve as a basis for human decision-making (Helfat & Martin, 2015). Consequently, this view has found its way into modern management theory during the mid-1980s, where it has widely been used to shed light on managerial decision-making and its effects on firm performance (Walsh, 1995). Closely related to this is the Penrosian view on the growth of firms, which states that the firm's environment is less of a *fact* in terms of an objective reality, but rather a subjective *image* in the entrepreneur's mind (Penrose, 1959), which—as a unique mental

representation (Gavetti & Rivkin, 2007; Kaplan, 2011)—ultimately guides his/her action. That points to the importance of looking deeper into people's minds and their construction of reality, in order to understand their behaviour, and not primarily at their environment. As Lucas et al. (2008) have pointed out, “the characteristics of small firms make cognition in decision-making much more important than it is in large firms” (p. 107), which is due to the role of the entrepreneur as the main decision-maker in a startup (Sosna et al., 2010).

Consequently, the idea has recently found increasing acceptance also within the entrepreneurship research domain, where it is now “widely recognised as an important key to understanding central aspects of entrepreneurship” (Baron, 2014, p. 61). The term *entrepreneurial cognition* has been coined in the extant literature to delineate this specific research stream, which can be defined as “the knowledge structures that people use to make assessments, judgments, or decisions involving opportunity evaluation, venture creation, and growth” (Mitchell et al., 2002, p. 97). Although the research field is still in its infancy and findings are rather fragmented, scholars increasingly agree that individuals’ cognitions play a central role in the dynamics of a BM (Cavalcante et al., 2011). Sosna et al. (2010), for instance, state that the cognition and sense-making of the entrepreneur provides “the most important input into the initial business model design” (p. 386), which implies that the BM is ultimately a function of the entrepreneur’s interpretation of certain (external) events (Kirzner, 1997; Yu, 2001). This is also reflected in other research findings, which provide evidence that perceived opportunities trigger strategic decisions of entrepreneurs (e.g., Mintzberg et al., 1976; Lucas et al., 2008), or—more specifically—induce changes in the BMs of firms (e.g., Markides, 2006; Osiyevskyy & Dewald, 2014).

On a more ‘technical’ level, it can be noted that individuals develop schemas (or mental models) that bundle accumulated knowledge about certain concepts—that is,

specific stimuli from the environment—including their features and the relationships between them (Fiske & Taylor, 1991). As such, these schemas encompass an individual's beliefs, evaluations, and judgments, which amalgamate into a simplified picture of 'reality' (Wood et al., 2014) that can be used as a frame to interpret and give meaning to new information (Baron, 2004). The degree of prior knowledge, experience, and expertise thereby determines how his information is being interpreted, which leads to heterogeneous, highly subjective results across individuals (Shane, 2000). The BM, after all, reflects the mental model of the entrepreneur, in that it depicts his/her interpretation of an activity system most suitable to exploit a perceived business opportunity. BM schemas, hence, are design logics (Porac & Tschang, 2013) that guide how entrepreneurs structure relations between different BM elements to yield a configuration that can ultimately create, deliver, and capture value – in the form of a functioning new venture that generates profits.

However, mental models also constrain entrepreneurs in their endeavours to create new BMs from scratch. That is due to the sheer complexity of such systems (Baden-Fuller & Morgan, 2010), as well as certain cognitive factors such as path-dependency or inertia (Ocasio, 2011), which limit human imagination. Thus, it appears promising to examine which mental operations entrepreneurs apply during the BMD process, in order to overcome constraints of this sort. Martins et al. (2015) suggest including recent findings from research in cognitive psychology, which proclaim that existing schemas can actively be changed, and new schemas can be created through processes of *generative cognition* (Ward, 2004). That refers to the reorganisation of existing knowledge structures, which is a process naturally used by individuals to cope with all kinds of novelty (Gentner, 1983). The work of Martins et al. (2015) thereby focuses on two generative cognition mechanisms in particular, namely *analogical reasoning* and *conceptual combination*. The former describes how individuals draw analogies to knowledge from a familiar domain in order to interpret

information in a new domain, and hence is based on detecting similarities between concepts. The latter, in contrast, refers to the combination of certain attributes from two concepts in order to create a new one, and hence looks for differences between concepts.

The pioneering work of Martins et al. (2015), however, solely focuses on proactive BMD from the perspective of an incumbent firm. But as entrepreneurs typically “face more hostile and uncertain environments” (Lucas et al., 2008) than managers of established firms and depend much stronger on finding the right BM, it can be argued that generative cognition processes play an even bigger role in an entrepreneurial setting, especially in the digital sphere. Comberg et al. (2015) are among the first to examine BMD along these lines, and identify six more workable cognitive processes “which undergird managerial reasoning during the design of new business model configurations” (Comberg et al., 2015, p. 1). Those are: *proven industry recipes*, *learned behaviour*, *problem orientation*, *intuitional reasoning*, *experimentation and adaptation*, and *active customer involvement*. As their research both affirms and extends the findings of Martins et al. (2015), the identified cognitive processes will be used as a reference frame throughout the remainder of this study.

2.6 Preliminary theoretical framework

The previous literature review has aimed to explore in more detail, which theoretical concepts emerge from the extant literature as to illuminate the relationship between entrepreneurial opportunities and BMs, claiming that both represent integral parts of the EP – and as such are prerequisites for new venture creation. Drawing on various emerging research streams at the intersection of entrepreneurship research and cognitive science, different building blocks have surfaced from the literature that will be used to develop a preliminary theoretical framework, as has been mentioned in the beginning. Those are: the individual (i.e., the entrepreneur), the

opportunity (consisting of EEs, NVIs, and OC), the BM (consisting of target customer, value proposition, value chain, and profit mechanism), and the cognition of the entrepreneur (comprising various generative cognition processes). The following framework (Figure 5) attempts to ‘connect the dots’ between these building blocks, in order to provide a first outline of how they interact with each other, and trigger the creation of new digital ventures.

Put in simple terms, this process could be explained as follows. Certain external circumstances (EEs) trigger an ideation process in the entrepreneur’s mind, who comes up with imaginary product-market combinations (NVIs). In a subsequent evaluation process, the attractiveness of those ideas is being assessed (OC), which serves as a basis for the decision to start a new venture. These considerations converge into a distinct cognitive schema that encodes the entrepreneur’s knowledge, beliefs, and judgments regarding the underlying opportunity. Using mental operations such as generative cognition processes, this schema is then to be transformed into an adequate BMD, which represents a distinct activity system configuration that enables the entrepreneur to enact the opportunity. The BM can then be used as a simplified template to structure and engage in concrete business activities; that is, to actually launch and operate a new digital venture. Once operations are running, information feedback loops are likely to occur, leading to modifications in the initial BMD. In case these modifications are substantial, they can also reframe the opportunity itself, by illuminating new aspects that were previously unknown.

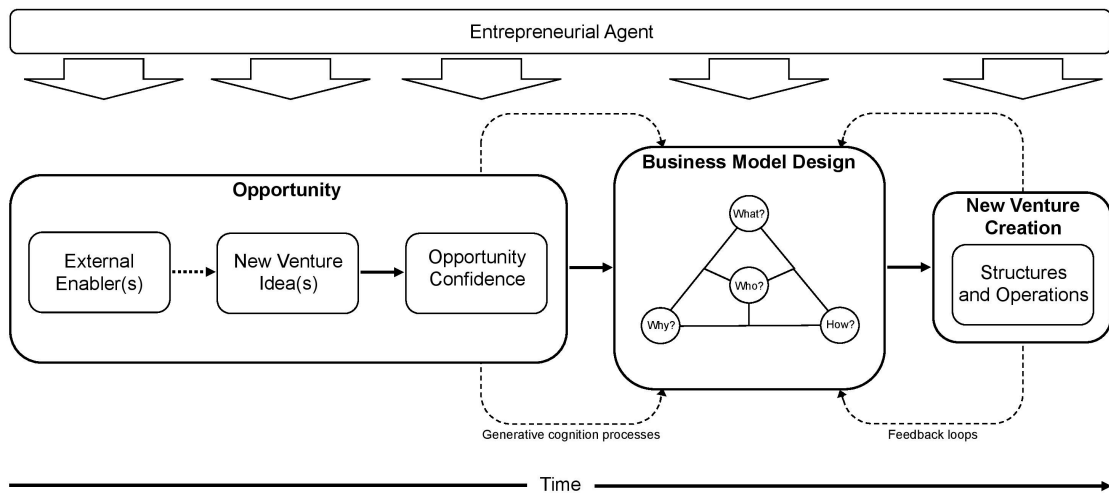


Figure 5. Preliminary theoretical framework (own illustration).

It is important to bear in mind at this point, that the framework uses the IO nexus as a general point of departure, and thus puts the focus on the individual agent. That is to say that although there are manifold factors that impact on the different building blocks of the framework, it is the entrepreneur who interprets certain external stimuli, translates them into ideas, and ultimately acts upon them. Hence, the framework can be seen as a tool to explore activities that occur at the individual level in the course of the entrepreneurial journey.

3. Methodology

After a review of the extant literature and a condensation of the findings into a preliminary theoretical framework, the goal of this chapter is to provide a bridge to observations of the phenomena in entrepreneurial practice. Thus, the next step is to present the methodology that will be used throughout the empirical part of this study.

3.1 Research design and method

As has been detailed before, the purpose of this study is to examine a part of the entrepreneurial journey that is not well understood yet. Due to the scarcity of empirical work that addresses this specific topic, there is a need to conduct research that can illuminate a complex, and somewhat opaque phenomenon. The case study method (CSM) has been proposed in the literature as an adequate research approach for dealing with such problems, allowing the investigator to dig deeper into the richness and extensiveness of real-life phenomena (Yin, 2013). As Schramm (1971) articulates, the attempt to understand how and why decisions were made in certain contexts is what lies at the heart of any case study. This logic, however, is not limited to the specific case of decisions, but can involve different types of entities, such as individuals, organisations, or processes (Yin, 2013). In addition to the type of research question (*how* or *why*), the latter author mentions two other conditions for the appropriateness of the CSM, namely that “the investigator has little control over events”, and that “the focus is on a contemporary phenomenon within a real-life context” (Yin, 2013, p. 2). Given that all three conditions apply to the focal research project, the CSM—and thus a theory-building approach—will be the method of choice in the course of this study.

It can further be distinguished between the use of single- and multiple-case studies, wherein the latter approach covers several cases in order to draw cross-conclusions. Various authors have argued that the use of a multiple-case design is to be preferred over a single-case design, as the resulting theory is considered to be more robust, better grounded, and more generalisable (e.g., Eisenhardt & Gräbner, 2007; Dubois & Gadde, 2014). Another central aspect of the CSM—that becomes especially salient within multiple-case designs—is the underlying replication logic, which means that each case can be seen as a distinct experiment (Eisenhardt, 1989). This logic serves to factor out chance occurrence and to increase the robustness of empirical findings

(Yin, 2011). In short, it can be noted that the overall objective of the CSM is to inductively build theory from empirical evidence, in this case the process of how entrepreneurs transform opportunities into BMs. This process is based on the recognition of “patterns of relationships among constructs within and across cases and their underlying logical arguments” (Eisenhardt & Gräbner, 2007, p. 25), while contrasting the evidence with existing literature. Given the above arguments, a multiple-case design will be applied in this study.

3.2 Case selection and sampling

Due to the focus of this study on theory building rather than theory testing, the cases were selected using a non-probability sampling technique, namely *purposive sampling*. As opposed to sampling strategies that aim to randomly select representative units from a certain population in order to make generalisations, as is typically the case in large-scale quantitative designs, sampling for case studies follows a different logic. Here, cases are chosen based on their particular suitability for revealing hidden aspects of the constructs under examination, by providing valuable information that respond to the CRQ. In a multiple-case design, however, this choice is slightly more complicated than in a single-case design, where the main selection criteria usually is the uniqueness of the case (Eisenhardt & Gräbner, 2007). With multiple cases, the challenge is rather to assemble a number of informants who can help illuminate different pieces of a puzzle, e.g. by eliminating alternative explanations or replicating findings across cases (Yin, 2013).

In order to meet this objective, the sampling process was performed in two stages. First, a bigger selection of 20 German startup companies was handpicked, and their founders were invited to participate in a roundtable discussion with 4 well-known venture capitalists (VCs), in order to discuss their BMs and the challenges they were facing at that time. The main selection criteria was that all startups must employ a

digital BM; that is they either generate revenue from digital products/services, or sell non-digital products/services via digital distribution channels. Further, all participants must have been involved in both the initial recognition of the business opportunity as well as the BM design process, which is why only the founders of the respective startups were being approached. In addition, for reasons of accessibility and convenience (Symon & Cassell, 2012), all of the considered startups were based in Berlin and none was more than 4 years old, which served the purpose of reducing the time period between the occurrence of the events and the point of examination. 12 out of 20 startups replied (60% response rate), accepted the invitation within the stipulated timeframe, and ultimately participated in the roundtable discussion, which was held at the Alexander von Humboldt Institute for Internet and Society (HIIG) in Berlin. One week before the event, each founder received a depiction of the *magic triangle* (see Figure 4) via email and was asked to prepare a three-minute pitch presentation, in which he elaborates on the BM of his startup, using Frankenberger et al.'s (2013) four-dimensional framework. The pitches were followed by open discussions, in which the participants were encouraged to share ideas and best practices on how to address specific, BM related challenges. In a second step after the event, these insights were used to narrow down the choice to a sample of 8 founders, who appeared to be the best fit for the objective of this study. In follow-up emails, those founders were asked to participate in in-depth interviews to further examine how their BMs came into being.

The final sample consisted of 7 individual entrepreneurs and their new digital ventures (see Table 1), which are based in Berlin and were founded within the last 4 years. That is in line with Eisenhardt (1989), who suggests a sample size of 4 to 10 cases when using a multiple-case design. Besides the commonality of employing a digital BM, the startups operate in different industries, including Big Data/Analytics, EdTech (education technology), FinTech (financial technology), SaaS (software as a service), and Self-Storage. Further, they were in different life cycle stages, ranging

from search, over build, to grow, using the classification by Blank & Dorf (2012). The participants were strictly male, and—by the time of the interviews—between 29 and 37 years old. Given the scope of the topic, co-founders and other team members, who might have been involved in the opportunity recognition or BM design process, were excluded from the sample.

Case	Sector	Short Description	Market Focus	Founded	Life Cycle Stage	Employees	Position of Interviewee	Age
C1	EdTech	F1 offers summaries of nonfiction books in a made-for-mobile format, distilled down to their key insights so that they can be read in 15 to 20 minutes.	B2C	2012	Build/ Grow	20	Founder & COO	33
C2	Self-Storage	F2 offers a full-service storage on-demand solution for individuals and businesses, providing customers with storage bins, home pickups, and an app to manage their stored items online.	B2B, B2C	2014	Build	11	Founder & CEO	30
C3	FinTech	F3 is a mobile peer-to-peer payment solution that allows users to easily transfer money within their circle of friends.	B2B2C	2013	Build	10	Founder & CEO	30
C4	Big Data/Analytics	F4 offers software tools to monitor and analyse market developments, technology trends and companies' competitive position for patenting and standardization.	B2B	2013	Search/ Build	4	Founder & CEO	29
C5	FinTech	F5 is a Bitcoin nanopayment wall for publishers, which allows users to instantly pay for sections of online-content (e.g., text, videos, etc.) they are really interested in.	B2B, B2C	2014	Search	3	Founder & CEO	37
C6	SaaS	F6 is a user-friendly, browser-based web service for conducting online meetings, including smart file collaboration features.	B2B	2013	Search	5	Founder & CMO	31
C7	SaaS	F7 offers a content-commerce solution to automatically create shoppable print-style online-magazines, freeing customers from time consuming layout or html work.	B2B	2012	Build/ Grow	32	Founder & CEO	36

Table 1. List of startup cases.

3.3 Data collection

According to Yin (2013), evidence from case studies can come from various sources, such as documents, archival records, interviews, observations, or physical artefacts. Building on the documentation of the roundtable (audio recordings, field notes, photographed sticky notes), the data was complemented with desk research, including publicly available information about the founders, their startups, and the BMs they employ. In addition, evidence came from observations of the founders during public speeches at several industry events, as well as from working together with two of the founders in the early phase of their entrepreneurial journeys. The main data collection method, however, was interviews, which have proven to be highly efficient for revealing rich, empirical data about a phenomenon of interest within its real-life context (Eisenhardt & Gräbner, 2007). Hence, additional data was collected using semi-structured interviews, a method of inquiry that is characterised by a flexible, rather fluid structure. As opposed to a structured interview, this technique is not limited to a fixed sequence of questions, but is more loosely organised around the core themes in the interview guide. It uses open-ended questions in order to gain a deeper understanding of the peculiarities of each case, and thus prioritises the natural flow of the interview over the sequence of the questions asked (Lewis-Beck et al., 2003). As a result, the interview proceeds in a more conversational manner (Yin, 2013), which allows the interviewee to open up and thoroughly present his own perspective.

Before conducting the interviews, an interview guide (see Appendix B) had to be developed, which could enable research that meets the requirements of the topic under investigation, and generate findings that sufficiently answer the CRQ. Building on the previously developed theoretical substantiation, the interview guide comprised 5 thematic blocks, each containing between 2 and 8 questions. The guide was developed in coordination with the responsible supervisors, and was tested

with a pilot case prior to approaching the main group of participants. According to Yin (2013), that can be considered an important step to encounter potential issues as early in the process as possible, and to refine one's own data collection plans. Due to the satisfying results of the pilot, the interview guide was only slightly adapted, and the pilot was included as the first case of the multiple-case study. Subsequently, the remaining interviews were conducted, following a standard procedure. First, the interviewees—who had chosen time and location—were informed on-site about the purpose and scope of the study, as well as the length of the interview. After that, they were asked to sign a consent form in which they agreed to participate in the study, and that their answers would be recorded. Following, the interview questions were posed, starting with fact-based introductory questions about the background of the entrepreneur and the startup. The subsequent building blocks addressed the main themes that emerged from the literature, such as the role of EEs, the development of NVIs, their evaluation, and the BM design process.

Whenever an interviewee seemed to stray away from the subject, the interview guide was used to lead the conversation back to the topic of the study. At the same time, the researcher paid utmost attention to emerging themes, and actively deepened the conversation with follow-up and specifying questions to focus on unexpected subjects. This can be considered a central task in the data collection process, as it facilitates theory development (Brinkmann & Kvale, 2015), which stands at the heart of this study. As such, the interview approach was increasingly phenomenological, in that it aimed to capture and understand the transformation process of opportunities into BMs from the specific worldview of the respective interview participants (Sanders, 1982). During the interviews, which were performed face-to-face, the researcher followed Berg's (2004) *Ten Commandments of Interviewing*, which can be summarised as "being purposeful, attentive, patient, cordial, and appreciative but probing" (Luton, 2015, p. 35) in order to achieve the best outcome. The interviews lasted between 32 and 77 minutes, with an average

length of 47 minutes per interview, and—as a preparation for data analysis—were transcribed afterwards (Cope, 2005).

3.4 Data analysis

After the transcription of more than 6 hours of interview- and about 3 hours of roundtable-material, the researcher was confronted with 142 pages of written data. To avoid a potential "death by data asphyxiation" (Pettigrew, 1990, p. 281), a crucial first step was to find a structured way of how to make sense of the collected data and its inherent complexity. As Eisenhardt & Gräbner (2007) argue, research that builds on qualitative data typically suffers from a trade-off between presenting a rich story and building a well-grounded theory, which becomes increasingly more difficult when a multi-case approach is being applied. Therefore, this study follows Yin's (1993) line of reasoning, who suggests to organise the narrative around the overarching topic of investigation, and not primarily around each single case. While the individual cases will not be presented in detail, the report will include a sufficient amount of rich empirical evidence, such as direct and indirect quotations, to support each part of the emerging theory. (Eisenhardt & Gräbner, 2007)

The data analysis process itself was performed as follows. First, the transcripts were thoroughly read, in order to identify paragraphs or single quotations that described distinct concepts and categories. The emerging categories were given labels, or *first-order codes*, to break down the raw data into more manageable units (Corbin & Strauss, 2014). In doing so, the task was to keep oneself from immersing too deeply into the own knowledge about the specific topic and its theoretical foundation, which was achieved by using provisional in-vivo codes. This open coding approach allows the researcher to step back and open up for surprising new aspects (Corbin & Strauss, 2014). By comparing the codes, both similarities and differences could be detected, which led to the combination of certain categories. The resulting

informant-centric codes were then amalgamated into theory-centric *second-order themes*, which comprised the conceptual ideas that emerged during the coding process. Triangulating between the different data sources, which were mentioned before, led to a gradual understanding of the topic under investigation, and strengthened the validity of the findings.

After data saturation was reached, axial coding was performed, which means that each category was analysed from various angles in order to discover relationships and patterns between and within categories (Mills et al., 2009). Following Trainor & Graue (2013), this can be achieved by asking questions such as “when, where, why, who, how, and with what consequences” (p. 117) while performing the analysis. In a final stage, using selective coding techniques, the previously developed second-order themes were integrated into so-called *aggregate dimensions*, which served as the core categories for building theory from the underlying cases. Table 2 shows an exemplary coding table for the theme *New Venture Ideas*. Based on a grounded theory approach, constant comparison was applied throughout the data analysis process, in that the researcher moved iteratively between concrete data and more abstract concepts in order to form emerging theory (Trainor & Graue, 2013). Further, MAXQDA, a professional software for qualitative data analysis, was used to systematise the process (Ghauri, 2004).

Aggregate Dimension	Themes	Codes	Exemplary Quotes
New Venture Ideas	Problem formulation	Observed problems	<ul style="list-style-type: none"> "Only people with Photoshop skills could tell beautiful visual stories, which made absolutely no sense to me" "All banks have to use two factor authentication for transactions, and there was no way to translate that into mobile"
		Experienced problems	<ul style="list-style-type: none"> "Most books I read contained insights that could easily be passed on, without having to read the full book" "My friends and I drank beer after soccer, but only one had cash - so we had to pay him back, which was kind of cumbersome"
	Market conditions	High demand	<ul style="list-style-type: none"> "When I was working at Deloitte, I saw the rapid growth of the self-storage market with an IRR of 20-25%" "Banks need such software, and they don't mind buying it from us instead of building it themselves"
		Low competition	<ul style="list-style-type: none"> "Nobody did this, there wasn't even a nanopayment solution for regular currencies, let alone Bitcoin" "A board member of the banking association told me that they were tired of developing new products in that field"
		Unsatisfactory solutions	<ul style="list-style-type: none"> "Self-storage centers didn't offer any service, so there just had to be a better solution than the current state" "I thought they did a horrible job at it and I wanted to make things more user friendly"
		Potential acquirers	<ul style="list-style-type: none"> "The product is open source, so it was important to ensure that it can potentially be merged with similar projects" "There were so many things to dock onto – and dozens of companies that could potentially take you over"
	Idea development	Friends & potential co-founders	<ul style="list-style-type: none"> "We discussed the idea with friends at first, and the feedback was great, which motivated us to go on" "My co-founders and I used to pitch ideas on a regular basis, and one of them was an app for book summaries"
		Potential investors & advisors	<ul style="list-style-type: none"> "The investor made clear that he would only invest in that specific idea, and so we started building it" "He [the investor] was very proactive, as he showed us in which direction to steer the idea so that we could go in full throttle"
		Potential users	<ul style="list-style-type: none"> "We made focus groups to get in touch with our potential target customers, which was very fruitful" "It's important to talk to those people who would be your customers, really – only then do you get valuable feedback"

Table 2. Exemplary coding table for the theme *New Venture Ideas*.

4. Results

In this chapter, the results of the empirical study will be presented. Following the interview guide, the results are structured along the major building blocks that were identified in chapter 2, which represent the aggregate dimensions that were used throughout the coding process. In total, a number of 23 themes emerged from the data, of which the most relevant codes will be described in detail, in order to draw a more concise picture of the topic under investigation. Appendix C shows the complete coding table that has resulted from the data analysis process.

4.1 External enablers

When asked about the external circumstances that favoured, or even triggered, their initial new venturing attempts, the interviewees referred to different influencing factors, which were combined into three themes.

Market Changes

As has been detailed by some interviewees, there were distinct market dynamics that played an important facilitating role in the early stage of the process. The founder of a FinTech startup that enables peer-to-peer payments between friends, said:

“You have to work with a bank in this industry, as you cannot carry out the transactions without a banking license. And then, FinTech was suddenly taking off and there were some startup success stories, Commerzbank opened its Main Incubator to collaborate with startups, etc. etc. (...) so the attention was suddenly there. This opened up the market, and eventually allowed us to start the company.”

A similar *market opener* was described by another founder, who noted that the online search for patents only took off with the rise of Google Patents, which was when the market for patent analytics tools was actually created. Closely related to this were statements that revealed *changing user needs and behaviour* as another trigger, such as the growing acceptance of the cryptocurrency Bitcoin, or an increasing need for IT security in Germany as a result of the NSA spying scandal.

Technological changes

Most prominent, however, was the impact of distinct technological changes. Given that all respondents employ a digital BM, it came at no surprise that *internet, smartphones, and apps* was mentioned frequently, which shows how much the ongoing digitalisation has sparked entrepreneurship across different industries. Apart from this almost prerequisite for starting up in a modern business environment, another founder mentioned *data access* as an important enabler for his business:

“The world increasingly communicates via technical standards, such as LTE, Bluetooth, Wi-Fi, etc. Back then it would have taken ages to find the right data [reference documents published by a standards development body], but today there are tons of open libraries (...), so that can be done within seconds. Data is just more accessible and indexed differently.”

Further, one interviewee said that recent advances in *standard web technologies*—such as HTML5 and JavaScript—were crucial for building a browser-based web service that does not require any client software to be installed, which was part of the unique selling point (USP) of his venture.

Regulatory Changes

Apart from market and technological changes, some interviewees also acknowledged the role of changes in laws or regulations, such as *deregulation* or the *harmonisation* of markets, as a key driver for the inception of their venture:

“We scanned the market and recognised that the SEPA technology had just been implemented, which harmonised different payment areas across Europe for the first time. (...) So most of the banks were switching from the old DTA model to SEPA, which enabled us to build our major asset [the product] on this technology.”

Cognitive processes

Based on the empirical data, it became apparent that distinct cognitive mechanisms were present throughout the process of recognising and interpreting certain EEs. A common pattern appeared to be that entrepreneurs relied strongly on *learned behaviour* during this part of the EP, in that they used their prior knowledge and experience to make sense of changes in the environment. This became apparent as many interviewees referred to specific technological or market-related aspects, which required a certain degree of expertise to recognise the economic potential they might contain, and were often related to their prior work. The use of *proven industry recipes* was another thinking pattern that occurred at that stage, as several founders described industry-specific *modi operandi* that were affected by changing external conditions.

4.2 New venture ideas

Three different themes that emerged from the interview data were assigned to the NVI concept, comprising a number of nine codes in total. These codes and themes gave specificity to the process and the underlying mechanisms by which the interviewed entrepreneurs came up with the initial ideas for their new ventures.

Problem formulation

A general pattern that could be observed in the data was that most of the founders—either explicitly or implicitly—mentioned distinct problems as the point of departure and the major source of their NVIs. However, there were differences in the way these problems were framed, in that some described *observed problems*, which mainly resulted from studying other people in their living or working environments, while others referred to *experienced problems*, which occurred in their own daily lives. As one interviewee said:

“I was living in Amsterdam in a tiny apartment, and I wanted to get rid of some stuff. But I was not in the mood to rent a car in that city, with its really small streets everywhere, get a truck, bring it all down the stairs, it’s such a pain. (...) And that’s how it all started, really.”

Irrespective of the problem’s origin, these descriptions were marked by the recognition of a gap between a current and a desirable state, which was expressed by the use of questions such as „Why isn’t there...“, „What if we could...“, or “Wouldn’t it be great to...”. Further, a striking similarity was that the problem space was often defined with simultaneous consideration of certain market conditions.

Market conditions

Several interviewees have pointed to market landscapes characterised by *low competition*, as a beneficial breeding ground for their NVIs. That refers to a lack of existing solutions within the targeted problem space as a trigger for the initial ideation process. As one participant articulated:

“I saw the nanopayment technology and thought: Nobody does that, although there is clearly an unsolved problem in the payment world. And so I tried to find a way to close that gap.”

Another founder remembered an informal talk with the representative of a German banking association, who signalled that industry incumbents had lost the interest in developing innovative applications and services, which strengthened his decision to develop a solution in that field. The remarks about supposed market niches, however, were not limited to the non-existence of solutions, but referred to existing, but *unsatisfactory solutions* as well. Many of the interviewees mentioned that they had observed products that failed at sufficiently catering to the needs of a specific segment:

“I’ve looked into many things, such as existing book summary services like getAbstract. They were doing this for twelve years already, but I thought they did a horrible job at it and I wanted to make things more user friendly.”

Hence, in many cases, observing such deficiencies seemed to have had a substantial influence on the definition of the opportunity, in that it shaped the scope of the NVI. There was another factor revolving around the competitive environment that was explicitly stated by two founders, namely the role of *potential acquirers*. Taking a different stance on the possibilities that arise from occupying a distinct market niche, this logic aimed at a potential acquisition of the startup once it had successfully been built and scaled. The data revealed that such factors were already taken into consideration at a very early stage, when thinking about the possible application field of the product:

“You could go in so many directions [with the idea], there were so many things to dock onto – and there were dozens of companies that could potentially take you over.”

Idea development

The idea development process itself has been described as “tossing” a rough business concept back and forth between the initiator of an idea—usually the founder—and other stakeholders, until it gradually took shape. One interviewee noted:

“At first, it was nothing but a vague idea buzzing around in my head. But I guess that is the normal process, that the idea evolves bit by bit, the more you talk about it with different people.”

Various participants mentioned that they had turned to *friends and potential co-founders* first, to discuss their idea and think about possible modifications and improvements. In more than one case, this marked an important step in the formation process of the original founding team, as the surfacing shape of the idea encouraged others to participate in the entrepreneurial journey as well. Apart from that, many stressed the influence of *potential investors and advisors*, who acted as “sparring partners” during the idea development process already:

“And then we approached investors with the idea, and were lucky to find someone who supported us and pushed the idea even further. He [the investor] was very proactive, as he showed us in which direction to steer the idea so that we could go in full throttle.”

Another founder mentioned the important role of a mentor, who helped him to better structure the ideation process by encouraging him to write a business plan, which—after several revisions—gave more specificity to the NVI. Also, two participants explained that they had discussed their ideas with *potential users* at a very early stage already. In this context, one founder emphasized the importance of addressing the “right” audience, as early user feedback could take an idea both into

a favourable or an unfavourable direction, especially in the case of an inexperienced founder.

Cognitive processes

The most prominent cognitive mechanism that was observed in conjunction with the emergence of NVIs was *problem orientation*, which many of the entrepreneurs under investigation used as a strategy to identify needs and come up with potential solutions. As the data indicated, there was a strong tendency that such an approach was underpinned by *learned behaviour*, in that entrepreneurs referred to specific knowledge about certain markets, existing products, or some of their features in order to model their own solutions. Interestingly enough, this was not limited to the knowledge base of the founders themselves, but also included the knowledge and experience of external stakeholders, who were involved in the idea development process. *Experimentation and adaptation* was another logic that was present during the ideation phase of the EP, as could be derived from the descriptions of several entrepreneurs who referred to the matter as proceeding in a non-linear, and usually reflective manner. This kind of early experimentation, however, seemed to be restricted to the initial appreciation of a small group of people, which only infrequently involved potential customers. Thus, it seemed that most of the entrepreneurs rather used *intuitional reasoning* when developing their ideas, instead of listening to the voice of the market early on in the process.

4.3 Opportunity confidence

The next part of the interview dealt with questions regarding the evaluation of the ideas, and the factors that influenced this process. Overall, the data analysis surfaced seven different themes that comprised 23 codes, which allow for a better understanding of how entrepreneurs decide whether an idea represents an actual opportunity, in that it appears worthwhile to be pursued.

Risk and uncertainty

Many participants described the decision-making process as characterised by a high degree of uncertainty, and a constant presence of perceived *risk*. However, there were differences in the way of dealing with that. While some founders seemed to deliberately embrace risk in order to grow and innovate, there were others that tried to find ways of how to reduce uncertainty as much as possible. Nearly all of the interviewees referred to *prior knowledge and experience* as a major source of their own confidence, which can be understood as a risk mitigation strategy:

“I’d been involved in tech-startups before, and had managed bigger projects there, so I felt quite prepared and didn’t really worry too much. I knew how to handle apps, I knew how UX works and everything - that really helped.”

Despite the importance of such factors, there were contradicting remarks showing that some founders considered a lack of specific knowledge as an actual advantage in this regard. That is because most entrepreneurial journeys turn out to be harder than they initially appeared to be, which one participant referred to as the “Egg of Columbus”. This shows that a certain degree of *naivety* can be useful, in order for a founder to decide for, and not against an opportunity:

“I have to say that we were quite naive, as none of us had a banking background. But looking back I know that no banker would have done this, as he would have given up before.”

The data revealed that this optimism was often undergirded by a strong *trust in others*, especially regarding their complementary expertise. One interviewee said he had forced himself to believe that his idea was technically realisable, as he would otherwise not have been able to think about the potential of the BM at all.

Feasibility

It became apparent from the data that part of the evaluation process, in many cases, was a feasibility analysis that comprised two different aspects. The code *economic feasibility* refers to the examination of the target market, as well as the potential to capture a fraction of that market. Participants said they had considered aspects such as market size, growth potential, and cost structure in their assessment:

“We took a closer look at the market, to understand the cost structure of some of the existing solutions (...) in order to approximate our own costs. And on the other end we asked ourselves, how much revenue does the market allow? A typical cost–benefit analysis, if you want.”

Another founder said that he had estimated payment defaults using numbers from a different industry, which—although being wrong—led to a positive appraisal of the venture’s profitability prospects. And one interviewee mentioned that it was important for him to assess the necessary investment for the product development in advance, as it provided a more accurate picture of the financial scope of the NVI and its capital requirements. The code *technical feasibility* describes the analysis of whether an idea can technically be realised, as well as which additional operational aspects need to be considered for bringing the product/service to the customer:

“The practical part was evaluated in many ways up front. I thought about the smallest things - what kind of a box, what kind of a truck... But also about the trickier stuff, such as the tracking of the stored items and how that could be synchronised with the online account.”

In the same vein, one interviewee stated that he had read SEPA rulebooks of several hundred pages to understand the technical requirements for starting his FinTech venture, while another founder thought about different possibilities to create book summaries in a scalable, yet high-quality manner. These remarks show that very

specific BM aspects were already taken into consideration at the early evaluation stage.

Assumptions

Despite the attempts to plan and predict certain aspects that might increase the probability of their startup's success, many founders described that they had used proposed explanations for other aspects they could not satisfactorily make sense of. Assumptions were made regarding points such as the general *price acceptance*, which one interviewee articulated as follows:

“We had heaps of questions before the start. Which price will the customer accept? Will he accept a price at all? What are the technical providers willing to pay for implementing our solution? With an innovative product, you have to make a lot of assumptions.”

This statement points towards an interconnection with the two aforementioned themes, in that it shows how the limits of comprehension mark the edge to the unpredictable part of the entrepreneurial journey. The newer the technology or the application field, the harder it seems to assess the feasibility of the NVI. That increases the perceived risk and hence the need for making assumptions, which—as a function of the entrepreneur's risk propensity—will most likely have an influence on his decision to start up. This pattern was observed in various other statements as well, where interviewees described that they had made “bets” on how certain aspects of their NVI would turn out in the future. That comprised assumptions regarding whether a certain *quality assurance* for app contents could be realised, or whether a targeted *unique selling point* would hold in practice:

“We had this idea to differentiate ourselves from GoToMeeting and WebEx [their competitors] by offering browser-based meetings: no installation, just get started. They didn't offer this then, but we had no clue if it would actually make a difference.”

Feedback

A crucial factor in the validation process of the NVIs was the feedback of various stakeholders. The data revealed that *friends and co-founders* played an important role not only in the idea development process, but also in the favourability assessment of a NVI. Some interviewees said that they had built first prototypes to seek feedback from close peers, which they considered helpful for determining their ideas' potential. Interestingly enough, most of the founders referred to this kind of feedback as such of potential customers, although a bias seems nearly inevitable when personal aspects are involved. That might explain why most participants attached more importance to feedback from external stakeholders:

"In our case, the validation was most likely the search for investors. If we could find someone who is willing to put his money in, and we could convince that person of the team, the idea, and the market - then that would be validation enough."

The specific role of *investors, sponsors and advisors* was recurring across various cases, in which the contribution of both, trust and money was frequently interpreted as a signal "to be onto something", as one founder put it. Further, while most interviewees referred primarily to venture capital in this context, there was one case in which the same effect was ascribed to a startup grant that had been awarded by the Federal Ministry for Economic Affairs and Energy (BMWi). Another type of stakeholder, which was mentioned multiple times, was coded *partners* in the course of the data analysis. As one interviewee noted:

"When we signed the contract with DKB [a German bank], I realised that it could work. They had checked everything, and if the bank says yes, it will work. From that point on I thought: ok, the idea is right, I'm entirely sure."

The different ways of validating NVIs, however, did not seem to mutually exclude each other. Rather, there was a general tendency in the data that founders sought approval for their ideas from close peers first, while the “final push” came from rather distant peers such as partners and investors.

Decision to start

Several interview participants described a point in time at which they made the decision to actually pursue the venture opportunity. This was usually the result of a positive evaluation, following the process that has been elucidated above. While some founders were able to pinpoint the decision to an exact date or event, there were others that described the decision making as proceeding rather fluidly:

“In the beginning, we were still financed by a grant, which made it feel less serious. But then you slowly get to a point where you realise that you could actually do it on your own. And then you have to... That’s when things get tough.”

Another founder said that his venture started off “rather randomly” at the pre-launch stage, but had “increasingly developed a life of its own”, which demanded him to take action. Apart from a thorough evaluation process, there were distinct patterns of individual motivation that appeared to have influenced the decision making process as well. While some interviewees articulated that the available opportunity was their *best option* at the time, others mentioned that they were attracted by the *challenge* of turning their idea into reality. One founder remembered that he had doubts at first, but wanted to avoid a *sunk investment* in terms of the time and efforts he had already devoted to the idea, which led him to decide to pursue the opportunity.

Cognitive processes

The empirical data suggested that the evaluation of EEs and NVIs was supported by various cognitive processes. Above all, it became apparent that entrepreneurs used *learned behaviour* as the major reference frame to assess potentials and feasibility, as well as to manage risk and uncertainty. Closely related to this was the application of *proven industry recipes*, which were used to make references to other, existing BMs or specific aspects of such, in order to assess the favourability of a NVI and its surrounding environment. Furthermore, this logic was applied to derive assumptions—or “educated guesses”—about the likely outcome of enacting a looming opportunity. Given that such considerations referred to a highly uncertain future state of the world, it can be argued that *intuitional reasoning* was another cognitive mechanism that played an important role at this stage of the EP. That is because entrepreneurs need a foundation to build their confidence on, in order to make decisions in situations where reliable data points are not available. Another mental tactic that could be observed was *active customer involvement*, which served as a means to validate certain assumptions early on in the process to reduce the risk of new venture failure. Such feedback loops point to the importance of combining internal and external opinions in the process of evaluating the potential of EEs and NVIs.

4.4 Business model design

The last part of the interview served to characterise the BMD process as it occurs in entrepreneurial practice. In total, the data analysis revealed 6 themes comprised of 22 codes, of which the most important ones will be outlined below.

Initial concept

When asked about the formation process of their startup's BM, many interviewees described an initial concept—that is, a provisional activity system configuration—they had used to enter the market:

“We had this first concept that we decided to go live with. We’d just do the launch and run it for a couple of months, to see if it works or not.”

The scope of the initial concepts, however, differed greatly between cases. Some of the founders deliberately chose a rather *lean* approach, in that they kept their product development efforts to a minimum, in order to learn directly from their users after the launch. This way they were able to operate more “light-footed and flexible”, as one interviewee put it, allowing them to make more informed decisions about which functions and features to build or abandon. It was noticeable that most of the explanations referred primarily to the product dimension—the *What*—of the BM, while the other dimensions were rarely mentioned explicitly. Nevertheless, there were several references to the role of the underlying resource base, in that founders described an interplay between the resources at their disposal and the configuration of their BMs:

“In the beginning we ran a project-based business, as this was relatively easy to operate with two people. The office space was part of the university, so costs were low, and we received governmental funds. This way we were able to finance ourselves throughout the first year.”

Hence, the design of the initial BM was often a result of the limited resources that the respective startups controlled during their inception phase. Despite the prevalence of such constraints, there was a smaller number of interviewees who described an initial concept that was characterised by a certain degree of *over-engineering*, in that its design was more complex than actually necessary:

“I would say we overdid it a bit, let’s put it that way. We built this incredibly beautiful platform, with all these features. And then it turns out that your customers want something really different, while you’ve invested a lot of money in certain details which no one ever used.”

Another founder used the metaphor of an “ivory tower” to describe the process of how he and his team had come up with a product that was overly sophisticated, as they had “wasted too much time” on technological nuances without considering whether they would add value to the customer. Generally, interviewees tended to explain such mistakes with a lack of entrepreneurial experience or an insufficient market orientation.

Hierarchy of BM elements

An interesting aspect of the BMD process was that nearly all of the interview participants mentioned a hierarchy of the different BM elements. Although the order of the elements varied, there was a common rationale that could be found in the descriptions of multiple interviewees, as has aptly been articulated by one participant:

“The major difficulty in the beginning is that everything is variable, all the building blocks of the business model. It’s incredibly hard to find one’s way through, so you have to force yourself to fix certain components while changing the remaining ones, in order to find the right model.”

A frequently mentioned concept in this regard was the *product/market fit*, which many described as the first and foremost important part of any BM. Combining the *What*—having a great product—with the *Who*—catering to a promising market—in the first step is intuitively appealing: without the product, there cannot be a company, and the best product cannot lead to success if there is no market for it;

thus achieving a fit between these elements can be considered fundamentally essential. Many of the founders seemed to have internalised this concept, which can be traced back to Blank (2006) and is widely popular among entrepreneurs in the digital sphere in general. However, it became apparent from the data that one of the underlying two elements was usually fixed first. One interviewee said that “in the beginning, everything revolved around the product”, which was confirmed by the statement of another founder:

“I saw the technical solution [the product] first and thought: there has to be a market for this. Then I looked at all the subsections of Bitcoin to see where it could fit, and came across the possibility of paying for certain sections of online-content [such as text snippets] only.”

Other interview participants described the process vice versa, stating that they had used design thinking principles—a user-centred approach to innovation—to understand the specific needs of end-customers in a certain market first, before specifying the product. Still others were more drastic in their views:

“You build a business model by being close to the market, I think that’s what it all comes down to. If you don’t gain insights into the market early on, you’re doomed to fail.”

Yet, the two camps expressed broad consensus that the other elements of the BM—namely value chain positioning, the *How*, and revenue model, the *Why*—mainly emerged as a function of a distinct product-market combination. Several interviewees described *interdependencies* between first and second order BM elements, in which the design of one element determined the shape of another. One interviewee illustrated this by referencing the relation between value creation and value capture:

“If you manage to generate value for the customer with your product, you will most likely find a way of how to monetise that value.”

Further was the design of these elements associated with certain *industry peculiarities*. For instance, two founders explicitly highlighted the importance of figuring out specific operational components within the value chain, which were essential for succeeding in their respective industry. Another interviewee noted that fixed transaction fees and percentage shares were the common revenue model in the online payment world, which was why he chose a similar approach in his BM.

Experimentation

The process of creating product/market fit and adjusting the second order elements of the BM accordingly has been described in many interviews as being characterised by successive cycles of experimentation. One founder used the example of SpaceX, an aerospace manufacturer and space transport service provider, to illustrate his view on the matter:

“These guys try to build reusable rockets, which is half-science, half-madness. Nobody knows if this is going to work! In the end, it’s a privately funded research project, and the same counts for every startup. They are small research cells that try to monetise their research findings.”

Accordingly, several interviewees referred to *test hypotheses* they had formulated throughout the process, representing their assumptions about different elements of their BM, which were then to be confirmed or disconfirmed. In one case, the founder drew a comparison to the working practices during his time as a PhD:

“It’s like scientific work. You have your hypotheses about how markets react, what customers are willing to pay, or which features are driving engagement. I think that’s how you have to do it, and you’re good at it when you quickly understand what works and what doesn’t.”

A number of participants described a *structured testing* process that followed the hypothesis formulation step, which served as a means to find answers to the most pressing questions regarding the BM. This approach was characterised by a thoroughly planned and orchestrated execution, under consideration of the available budget and the potential outcome of the tests. The founder of a SaaS startup used a metaphor to describe this process as follows:

„I picture the business model as an egg made of stone. As a founder, I have a fine needle to tap onto that egg, in order to find the weak spot that cracks it. But each tap costs a great deal of effort and money, so the number of taps that I have is limited to what I can afford.“

This quote points to the role of resource scarcity as a major bottleneck in the experimental BMD process, in that many entrepreneurs tried to find the most efficient ways of how to successfully test specific BM elements. However, there was a smaller number of interviewees who described the process as rather fuzzy *trial and error testing*, stating that “there was no clear plan” but “a certain gut feeling that we should try something in that direction”. It should be noted that such comments referred mainly to second order elements, which might indicate that planning increased with the importance of an element as part of a particular BM. Furthermore, there was a common pattern labeled *analyse and learn*, which refers to the outcome of such tests. Several interviewees mentioned in this context, that both positive and negative test outcomes were “incredibly helpful” to deeply understand the motivations and needs of customers, and how to build a BM configuration around that, which would “better help them to get the job done”, as one founder put it.

Iteration and adaptation

Given that designing a BM by experimenting with its core elements is a gradual process, it appears logical that iterative loops and adaptations occur in between. That is because the test results—in the best case—illuminate those aspects of the BM that can further be improved, by changing its structure and retesting it afterwards. The empirical data revealed that several types of discoveries were present during that process. Most prominent was the *detection of gaps*, which refers to the recognition of certain weak spots of a BM:

“When questions came up that we couldn’t answer, it was usually a sign that this part of the model was still unsolved. We had no clear value proposition for quite a long time, for instance, which became apparent when we asked ourselves how we stand out from our competitors.”

Such gaps were also described as the detection of “problems that had to be solved” in order for the model to function, which led to the exploration of alternative areas within the solution space. Related to this is the code *detection of nuggets*, which includes both, the discovery of unexpected solutions to identified problems, as well as entirely new and superior alternatives to existing BM configurations. Interviewees, for instance, mentioned the unexpected adoption of certain user groups that were not intentionally addressed, or the discovery of specific market insights that led to a significant change in the product’s focus. Moreover, there were several founders who referenced the *detection of fallback and interim solutions*, which describes BM configurations that generate revenue, but do not represent the founder’s actual vision of the emerging company:

“One of our first clients asked for something that we didn’t offer, but eventually delivered - we scraped websites, cleaned the data and sold it afterwards. That was our only revenue

source during the first six months that we were in business, although it was nothing innovative and didn't include any technology at all."

It was noticeable that such a "bridging strategy", as one founder called it, was often employed when the product vision implied the automatisisation of certain processes, parts of which could be carried out manually in order to generate first revenues until the actual product was fully developed. One interviewee noted that the early identification of alternative revenue streams was "a crucial thing to keep in mind" during the BMD process, as it provides options to fall back on, in case the envisioned model should not work out as expected. A number of interviewees compared this part of the entrepreneurial journey to a labyrinth, in which the entrepreneur frequently runs into "dead-ends" where he has to "take a step back and go to the last turning" in order to find his way. The iterative nature of this process was also reflected in the statement of another founder, who referred to the *gradual optimisation* that occurs when searching for the most promising BM configuration:

"At first, you look around and make a huge step into one direction, and ideally the next steps become smaller and smaller. So you polish and improve the model bit by bit, until you take care of the odds and ends of your business model, like Facebook or Amazon does today."

It was evident that such statements were often made with reference to a *reduction of complexity*, in that unsuitable or less promising aspects of the BM were dismissed, in order to focus on the optimisation of those aspects that were considered crucial for success.

Additional validation

Another interesting aspect of the BMD process was the role of additional validation through a consideration of different external triggers. One of such was the application of BM *archetypes*, which represent real world examples of a distinct BM

configuration, or a specific BM element. The use of such templates was mentioned across several interviews:

“We looked at how other companies sell their content, and figured that flat rates are pretty standard by now. I mean, who buys single mp3s nowadays? Even Audible and Amazon do it like that, and we tried to emulate their model.”

While the use of archetypes was mostly related to an observation of best practices from companies operating in related, yet different fields, further validation also came from observing direct competitors. A number of interviewees mentioned the use of *benchmarking* in this context, as a means to learn from other companies that operate comparable BMs in the same industry:

“There’s a lot to learn from the competition, if you only look closely. What do they offer, and how? There will be good reasons why they do it like that. Understanding these links can be very valuable, especially as a confirmation of one’s own way.”

Furthermore, there were several hints in the empirical data revealing that *investors and advisors* played a significant role in validating and directing the design of different BM elements. It became apparent that many founders attached great importance to the assessment by such stakeholders, which is why it was especially salient during explanations that referred to final decision-making processes. As one interviewee articulated:

“We had this idea in mind to cut out the user fee and let the banks pay, but wanted confirmation for that. (...) He [a well-known VC] is a FinTech-guy and knows the industry, and he told us to eliminate the fee as this would speed up growth. And that’s what we did.”

Another founder described a similar scenario, in which he dismissed a freemium model—giving the core product away for free, while generating revenue by selling premium add-ons—as the adequate revenue mechanism for his BM, after learning from industry peers that it would inhibit growth. Overall, the data suggested that entrepreneurs rely on the expertise of other, often more experienced, peers when deciding for or against a specific design of certain BM elements.

Cognitive processes

The interviewed entrepreneurs referred to various aspects that indicated that a broad set of cognitive strategies was being applied during the BM design process. Above all, *experimentation and adaptation* stood out as the major design logic that guided how relations between different BM elements were being structured. That was apparent in the reflections of many entrepreneurs who described a process in which they acted like scientists, in that they built hypotheses about certain BM configurations which were then being tested. In contrast to the previous stages of the EP, this approach implied direct market exposure, in that *active customer involvement* was an inherent part of experimental BMD and the major source of feedback. As such, it played a crucial role in validating the different BM elements, by using the discovered facts to make changes to the model, in order to make it resonate with identified user needs. While this design logic was particularly evident with regard to first order BM elements, the data revealed that *proven industry recipes* were more often applied when making decisions about the second order BM elements. That was reflected in the aforementioned statements about the use of archetypes and benchmarking at this particular stage of the EP. The application of *learned behaviour* was apparent in the descriptions relating to provisional BM configurations, in that many entrepreneurs used prior knowledge and experience to create initial activity systems, which could then be utilised to initiate the experimental BMD process. Further downstream, learned behaviour rather comprised knowledge of more abstract tools and methods—such as design thinking or lean startup—which were

applied to better structure the explorative part of the journey, and to make sense of the resulting discoveries. *Intuition*, in contrast, was mainly observed in statements that referred to situations where entrepreneurs were lacking a reference frame, and could not rely on tools to enhance their understanding of a particular situation in order to make well-grounded decisions about the design of certain BM elements.

5. Discussion

The CRQ of this study revolved around the relationship between two concepts, namely opportunities and BMs, in the specific context of digital entrepreneurship. Despite the central role of both concepts in much of the work that has recently been published in the entrepreneurship research field, their structural composition remains surprisingly opaque. Hence, in the light of this paradox, the present study set out to unravel both concepts, in order to explore the linkages that determine their relationship along the EP. It was assumed that only then could be examined how vague opportunities are being transformed into viable BMs. As originally intended, the multiple-case study revealed a conceptual richness that provides better insight into the complex mechanisms that underpin the phenomena under investigation. The following chapter will review and interpret the findings in the context of the extant literature, in order to answer the posed research questions.

In a first step, the goal was to find answers to the following sub-questions: *Which conceptual building blocks emerge from the extant literature to constitute this transformation process, and how can they be delineated?* And further: *How can these building blocks be systematised and positioned within the EP?*

Using Davidsson's (2015) re-conceptualisation of the IO nexus, it was possible to decompose the opportunity concept into three distinct building blocks, namely EEs, NVIs, and OC. This view provides clarity by differentiating between environmental circumstances, the development of ideas, and the evaluation of their future prospects, and thus helps to distinguish objective contents from subjective perceptions. Following the position of various leading researchers in this field (e.g., Zott & Amit, 2007; Eckhardt, 2013), it has then been argued that entrepreneurs—either explicitly or implicitly—create BMs in order to exploit specific opportunities. This first link pointed towards the role of the BM as the bridge between an opportunity and a firm (e.g., George & Bock, 2012; Eckhardt, 2014), which renders its crafting a fundamental part of the EP. The widespread use in the literature of a definition that views BMs as activity systems (Amit & Zott, 2010), reflects this stance, claiming that the BM depicts the logic of how a firm does business. That comprises the configuration of key activities to create, deliver, and capture value (Osterwalder & Pigneur, 2010), and thus represents the firm's complex "pattern of operations from a holistic perspective" (Demil & Lecocq, 2015, p. 32). As such, the BM functions as a template for a startup, which allows the entrepreneur to make sense of the pieces of information that comprise the underlying opportunity, and to translate them into concrete operational actions. A model in the very sense of the word, the BM consists of a number of elements that can be used to experiment with the emerging firm, by changing their configuration. Building on the work of Frankenberger et al. (2013) and Gassmann et al. (2013), a four-dimensional structure has been employed throughout this study, which decomposes the BM into target customer, value proposition, value chain, and profit mechanism. The use of these common elements simplifies the process of communicating and discussing the model with various stakeholders in the course of the EP. To assess how entrepreneurs build and refine such models from scratch, it has then been proposed to consider the cognitive dimensions of the BM concept – that is, the mental processes that are being employed when designing specific BM configurations. Recognising the recent work

of Martins et al. (2015) and Comberg et al. (2015), the focus has been laid on a set of generative cognition processes that appeared promising to delineate how entrepreneurs transform initial ideas into organisational realities. After having identified the relevant variables—or building blocks—and their interrelations, the findings were then combined into a preliminary theoretical framework (see Figure 5), which represents a first attempt to distil a new perspective on the EP.

In a second step, the goal was to answer the remaining two sub-questions, which were formulated as follows: *Based on observations of the phenomenon in entrepreneurial practice, how does the transformation process occur in the 'real world'? And: Which cognitive processes undergird the transformation process in practice?*

The findings from the multiple-case study revealed new aspects of the subjects in focus of this study, and make several contributions to the literature. First, and quite generally, the findings affirm the relevance of the proposed building blocks as fundamental parts of the entrepreneurial journey. The opportunity triad, consisting of EEs, NVIs, and OC, was apparent across all of the examined cases, and showed relatively strong linkages with the BMD process. Hence, there was evidence that the theoretical framework does—to a certain extent—reflect the natural *modus operandi* of entrepreneurs who build digital ventures.

Second, judging from how the interviewees described the occurrence of certain EEs, they did in fact appear to have an objective core, in that they represented possibilities that everyone could freely try to exploit. In addition, the data showed that there were strong interdependencies and mutually reinforcing effects between different EEs, which seem to have influenced whether they were perceived as favourable or not. That is in line with Navis & Glynn (2010) and Davidsson (2015), and points to the direct interactions that occur between the different building blocks that comprise the theoretical framework. In more than one case, there was evidence that a sequential appearance of two distinct changes in external conditions revealed

new aspects of the opportunity, which led to a change of direction of the evolving venture.

Third, various founders described the emergence of their NVIs as gradually conflating cognitive fragments, which originate from an unsolved problem, and traverse through a dynamic—and quite experimental—idea development process that is shaped by different stakeholders. Although clearly non-material in nature, several statements implied that NVIs often contained reflections on the configuration of distinct BM elements, already at an early stage of the EP. Hence, and in slight contrast to Davidsson (2015), the data showed that entrepreneurs think about concrete ways of how their ideas can materialise into new ventures, even before other stakeholders have approved them. This supports the notion that one can distinguish between the contents and the evaluation of NVIs (Katz & Gartner, 1988; Shane, 2012), which is the main reason why Davidsson (2015) proposed the OC construct in the first place.

Fourth, the evaluation process has been described as characterised by extensive feasibility and risk management activities. As risk and uncertainty are integral parts of entrepreneurship, the favourability of EEs and NVIs is typically assessed by analysing the adhering economic and technical feasibility, while considering the own possibilities. Drawing on prior knowledge and experience, entrepreneurs try to mitigate risk by anticipating potential ‘roadblocks’ and develop strategies to overcome them. There was evidence from the data that such thought processes include operational aspects that can directly be related to distinct BM elements and their configuration. Hence, the BM is being used as a tool—as in Doganova & Eyquem-Renault (2009), or Sabatier et al. (2010)—to predict the future prospects of an underlying opportunity, in order to gain the necessary confidence to start up. Further, it became apparent that OC emerges through social interaction between various stakeholders (Dimov, 2007; Gemmel et al., 2011), who support the entrepreneur with their own knowledge and experience to better assess the

favourability of certain EEs and NVIs. This exemplifies how the exchange with external stakeholders affects decision-making at the individual level.

Fifth, using the four-dimensional BM structure that was employed in this study, has proven to be fruitful for studying how entrepreneurs design new BM configurations from scratch. Most interview participants found it easy to relate specific experiences from their entrepreneurial practice to the four elements, and could provide valuable insights into the BMD process. According to the data, entrepreneurs follow an iterative, in fact highly experimental approach in practice (Chesbrough, 2010), when developing digital BMs. They tend to differentiate between first and second order elements, in that they focus on defining the value proposition and target customer first. Using hypotheses about what users want, and what they are (technically) able to deliver to meet those needs, entrepreneurs set up and implement provisional BM configurations (Teece, 2010; Mason & Spring, 2011) and put them to the test. This process, which is cyclical and iterative, serves to gather feedback and adapt the model accordingly. The second order elements—that is, value chain positioning and revenue model—often remain interchangeable supplements, which are being adjusted to match the changes in the other two elements. Based on the resources at their disposal (Haynie et al., 2009), entrepreneurs decide on the extent of these tests, which on the one hand lead to the discovery of interim solutions, and on the other hand gradually sharpen the BM of their venture. In addition to user feedback, validation also comes from the consideration of BM archetypes, benchmarking, and the advice of various stakeholders at different stages of the design process.

Sixth, it became apparent that entrepreneurs in the digital space are particularly inclined to apply specific methods and tools—such as product/market fit (Blank, 2006), design thinking (e.g., Brown, 2008), and lean startup (Ries, 2011)—to design their BM configurations. The latter methodology was especially prominent in the explanations of many founders, who explicitly mentioned the influence that lean startup had on the different activities along their entrepreneurial journey. That is

primarily reflected in the empirical findings on the BMD process, which show strong resemblance with certain aspects of Ries (2011). Given the book's popularity in the tech sector, it seems that many entrepreneurs greatly value the lean approach, and have internalised the underlying principles in their own business practice by now. Thus, it became evident from the data that the principles of lean startup do—to a certain extent—describe how entrepreneurs act when developing digital products and corresponding BMs in today's fast-paced business environment. Hence, although initially not intended, such aspects will be considered in the theoretical framework.

And last, there was evidence that entrepreneurs apply generative cognition processes not only as design logics to arrange their BM configurations (Porac & Tschang, 2013; Comberg et al., 2015), but use the same schemas along the opportunity construct as proposed by Davidsson (2015). This points to the notion that “opportunities are made, not found” (Ardichvili et al., 2003, p. 106) and thus require a successful opportunity development process, which culminates—in a cyclical and iterative manner—in a viable BM configuration.

5.1 Revised theoretical framework

Based on the empirical findings of the study, the preliminary theoretical framework—which was developed in chapter 2—can next be refined in order to better reflect the realities of entrepreneurial practice in the digital space. Figure 6 illustrates the main propositions that have emerged from the data, by acknowledging the iterative cycles that occur between the different building blocks, the role of generative cognition processes in opportunity creation, the hierarchy of BM elements in the BMD process, as well as the influence of both, the entrepreneurial agent and various external stakeholders throughout the entrepreneurial journey.

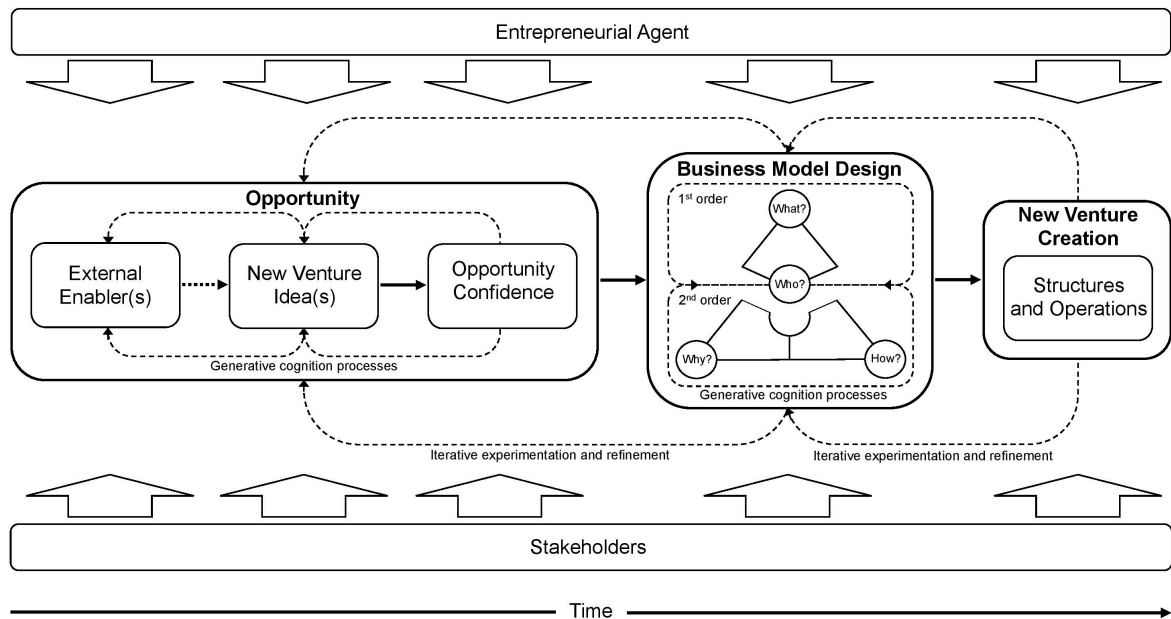


Figure 6. Revised theoretical framework (own illustration).

6. Conclusions and implications

Doing business today requires adapting to a rapidly changing environment. Technology is literally shrinking the world, linking actors across borders and enabling ideas and knowledge to proliferate at an unprecedented rate. As a result, product life cycles are shortening, which increases the pressure on organisations to innovate in order to earn profits and stay ahead of the competition. But the changing business environment does not only pose challenges to managers of incumbent firms, it also has major implications for entrepreneurs who build digital ventures. The new playing field for entrepreneurship that emerges in this environment is inherently dynamic and entails increased levels of uncertainty, as the shelf life of a new idea is a function of the rate of change that surrounds it. At the same time, change creates opportunities, which lie at the heart of entrepreneurship. It is thus no wonder that some of the most impressive entrepreneurial success stories were born in the digital age of the twenty first century, exploiting opportunities that surfaced with the advent of the Internet. These opportunities, however, differ from those in a

more traditional business environment, and so does the exploitation path that entrepreneurs take when building digital ventures. The focal study set out to explore what constitutes such opportunities, and which tools and methods the ‘new generation’ of entrepreneurs employ in order to create and capture value from them.

Drawing on the design literature and findings from cognitive psychology, this study argues that entrepreneurship in the digital domain can be viewed as a complex, transformative process that centres on the BM as the major link between an opportunity and an evolving organisation. Instead of being static and exogenous, opportunities appear as “imperfect shards, irregular and rough-edged” (George & Bock, 2012, p. 15), which need to be shaped and developed in order to reveal their true scale and scope. This demands entrepreneurs to act as designers (Zott & Amit, 2007), who build coherent BM configurations that resonate with an underlying, highly dynamic opportunity, and allow for adaptive changes as promising new aspects emerge. As such, the BM represents the evolving opportunity, and guides its translation into operational artefacts, which turn a cognitive design into organisational reality (Demil & Lecocq, 2015). In sum, this research describes entrepreneurial journeys in the digital age as fluid sets of distinct activities for opportunity-creation, which are of both, material and non-material nature. Entrepreneurs perform these activities in an iterative manner, circulating along the BMD and venture creation path, in order to provide specificity to the opportunity itself (George & Bock, 2011; Demil & Lecocq, 2015).

This study represents one of the first attempts to draw together different evolving research streams that have lately received increasing attention from entrepreneurship scholars. As such, it responds to the call by George & Bock (2011) to explore the relationship between the BM and opportunity creation via “a cognitive model linking opportunity landscape assessment to business model design” (p. 106). In doing so, the study offers both, conceptual as well as empirical

contributions to the literature. Conceptually, it advances the research field by developing a theoretical framework that is anchored in the extant literature, to shed light on the mechanisms by which opportunities, BMs, and evolving new ventures are interconnected. Empirically, by drawing on data from observations, workshop transcripts, and interviews with founders of seven new digital ventures, this study enhances the understanding of how entrepreneurs—in practice—design new BM configurations from scratch, in order to create opportunities in highly uncertain environments. Combining the two, it further serves to validate Davidsson's (2015) re-conceptualisation of the IO nexus as a useful tool to study entrepreneurship from an opportunity-centric perspective, both in theory and practice.

In addition, this study has several implications for practitioners, who are actively involved in the creation of new ventures in the digital space, such as founders, investors, experts and advisors. By illuminating the interplay of the different building blocks that constitute the EP, it reduces the complexity that stakeholders are facing, which allows them to more easily derive strategies for impacting on the process and directing it towards their goals. It does so by explaining how different cognitive processes as well as the BM construct can be applied as tools for transforming opportunities into actual businesses, which can be assumed to be in the interest of all individuals involved. Further, entrepreneurs who want to excel in their roles as so-called 'seekers, imaginative architects and system designers' (Porac & Tschang, 2013), can use the findings of this study to better understand how to combine their mental models with specific knowledge from external stakeholders, in order to gain new perspectives that push the creative boundaries of digital entrepreneurship.

7. Limitations and future research

The focal study has its limitations. First and foremost, some of the conceptual building blocks that constitute the proposed theoretical framework represent relatively novel phenomena within the entrepreneurship research field, which bears the risk of drawing wrong conclusions from inconsistent findings in the literature. Given the recent popularity of many of those concepts, the author was confronted with a multiplicity of definitions and interpretations, which required a purpose-oriented selection process. Thus, future research would benefit from a thorough review of the extant literature in this field, in order to identify further aspects of the phenomena under investigation that might prove worthwhile to be considered in the framework. Furthermore, while the study reveals valuable insights into the role of BMs along the opportunity-creation path, it stops short of delineating how BM configurations actually materialise. Using the notion of artefacts (Demil & Lecocq, 2015) appears to be a promising avenue for further research, to shed light on an important part of the entrepreneurial journey that this study has barely scratched the surface of.

What is more, there was empirical evidence that entrepreneurs use generative cognition processes at various stages along the EP, and not only to make sense of evolving BM configurations. While the focal study acknowledges this finding, more research is needed to advance the understanding of how, for what, and at which stage entrepreneurs use distinct cognitive processes to create opportunities. In the same vein, the generative cognition processes that have been employed throughout this study, are mainly based on the findings of Comberg et al. (2015). Thus, another interesting pathway for research could be to respond to the call by Demil et al. (2015) to investigate “what other cognitive processes exist besides those about which we already know” (p. 9). And last, there are some methodological limitations that should not remain unmentioned. As is typically the case in qualitative research, the

sample size of the empirical study can be considered relatively small, and thus does not allow for a generalisation of the findings. This is all the more the case as the focus of this study was on the creation of new digital ventures, which might evolve in different ways than organisations in more traditional business environments (Hull et al., 2007). However, as the purpose of the study was to build theory from cases, further research could examine whether the proposed findings can be confirmed – that is, whether they provide analytic generalisation (Yin, 2009). Also, as some of the interviews differed substantially in length, and entrepreneurs elaborated differently on various aspects of the posed questions, a certain bias towards the statements of single interview participants cannot be ruled out.

In essence, this study represents an attempt to provide a fresh perspective on how entrepreneurial journeys in the digital age unfold. The author hopes to inspire future work that draws on its findings, by using the underlying framework to contribute to a better understanding of the matter, and to either confirm or challenge its propositions. The road travelled so far has been short, and there are plenty of interesting questions to be asked along the road ahead of researchers in this field.

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Appendices

Appendix A – Roundtable agenda

VCs X Startups: Changing Perspectives on Business Models and their Potentials

Tuesday, 21-04-2015 | 17.00 – 20.30 HIIG | Oberwallstr. 9, 10117 Berlin

17:00 Introduction

17:05 Short presentation of researchers, VCs

17:15 Keynote 1: What is a business model? How can it be influenced?

17:20 Your current business model, you as an entrepreneur, your challenges (I)

17:30 Open discussion

17:40 Keynote 2: Startup-Business Models – Case Study

17:50 Your current business model, you as an entrepreneur, your challenges (II)

18:00 Open discussion

18:10 Keynote 3: Startup-Business Models - Dos & Don'ts

18:20 Your current business model, you as an entrepreneur, your challenges (III)

18:30 Open discussion

18:40 Break

18:45 Intro pattern cards, selection via NABC, condensation

19:00 Ideation with pattern cards

19:15 Idea selection & evaluation

19:45 Presentation (1min each)

20:15 Closing discussion

20:30 Pizza & Beer

Appendix B – Interview guide

I. Entrepreneurial agent

[This section serves as a warm up for the interview and aims to shed light on the entrepreneur and his background. Questions are rather fact-based, easy to process, and allow for an analysis of the role of individual factors within the examined process.]

- To start, would you please introduce yourself? Who are you, how old are you?
- Can you briefly talk about your background? What did you study, what have you done before? (prior work/entrepreneurial experience and length, positions and responsibilities, which industries, what type of knowledge and skills, etc.)
- What is your current position/which responsibilities do you have in the startup?

II. Startup

[This section aims to outline distinct characteristics of the startup in focus. Questions are rather fact-based, easy to process, and allow for a classification of the different startups in terms of industry, size, performance, life cycle stage, etc.]

- Can you describe in two sentences what your startup does?
- In which industry do you operate? When was your startup founded?
- How many people do you currently employ?
- Are you venture-backed? (voluntarily)
- Does your startup already generate revenues? (voluntarily)
- Did you break-even yet? (voluntarily)
- In which life cycle stage is your startup right now? (search, build, or grow)

III. Opportunity recognition

[This section focuses on the first building block of the theoretical model. The aim is to examine the type of opportunity that has initiated the entrepreneurial process, and what led to its discovery. Questions aim to trigger memories that possibly date back up to several years.]

- Thinking back, what was the initial business opportunity/idea that your startup builds upon today, and how did you discover it?
- Can you describe the perceived opportunity itself in more detail? (e.g. did certain external factors such as regulatory changes, technological breakthroughs, or demographic shifts play a role, or was it rather an isolated idea/“eureka moment”)
- Would you say that the initial opportunity/idea was rather fuzzy, or did it set a clear path for the future development of your startup?

IV. Opportunity evaluation

[This section focuses on the second building block of the theoretical model. The aim is to better understand which conjectures were triggered by the specific business opportunity, thereby illuminating the cognitive thought processes that were applied.]

- Once the initial opportunity/idea was discovered, how did you evaluate whether it would be worth pursuing? (assumptions regarding practical feasibility, economic value, etc.)
- What drove your decision to finally enact the opportunity/bring the idea into being?

V. Business model design

[This section focusses on the third and last building block of the theoretical model. The aim is to examine the logic that entrepreneurs use to sophisticate their conjectures into a business model design configuration. Again, this is to illuminate the underlying cognitive thought processes.]

- What is your current business model? Please describe the single elements and how they interact. (product/service, customer/market, value chain, revenue model)
- How did you translate the opportunity/idea into the business model configuration that you have just described? (e.g. inspired by existing models in the market, inspired by competitors, trial and error, influenced by investors, etc.)
- Would you say that the design of your business model was a systematic/planned process, or did it rather evolve organically/by chance?
- In which life cycle stage did the design process occur? (search, build, or grow)
- In your opinion, what is the concept of a business model good for?

Appendix C – Complete coding table

Aggregate Dimensions	Themes	Codes
External Enablers	Market changes	Market openers Changing user needs & behaviour
	Technological changes	Internet, smartphones, & apps (general) Data access Standard web technologies
	Regulatory changes	Deregulation Harmonisation
New Venture Ideas	Problem formulation	Observed problems Experienced problems
	Market conditions	High demand Low competition Unsatisfactory solutions Potential acquirers
	Idea development	Friends & potential co-founders Potential investors & advisors Potential users
Opportunity Confidence	Risk & uncertainty	Risk Prior knowledge & experience Necessary naivety Trust in others
	Feasibility	Economic feasibility Technical feasibility
	Perceived hurdles	Complexity of task Entry barriers User adoption Team willingness
	Assumptions	Price acceptance Quality assurance Trending market Unique selling point
	Feedback	Friends & co-founders Investors, sponsors & advisors Partners

Business Model Design	Decision to start	Best option Challenge Sunk investment
	Initial concept	Lean start Over-engineering
	Hierarchy of BM elements	Product/Market fit Interdependencies Industry peculiarities
	Experimentation	Test hypotheses Structured testing Trial & error testing Analyse & learn
	Iteration & adaptation	Detection of gaps Detection of nuggets Detection of fallback & interim solutions Gradual optimisation Reduction of complexity
	Additional validation	BM archetypes Benchmarking Investors & advisors
Cognitive Processes	Proven industry recipes	
	Learned behaviour	
	Problem orientation	
	Intuitive reasoning	
	Experimentation & adaptation	
	Active customer involvement	