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How should successful business models be configured? Results from an empirical study in business-to-business markets and implications for the change of business models

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Abstract At the present moment there are no results that have been established on a wider empirical basis on how successful business models should be configured. On the conceptual level, the authors further develop the Business Model Canvas of Osterwalder and Pigneur (Business Model Generation: Ein Handbuch für Visionäre, Spielveränderer und Herausforderer. Campus, Frankfurt am Main, 2011) against the backdrop of a well-founded and practice-oriented understanding of the business model concept. On the empirical level, which is based on the revised Business Model Canvas, the paper examines the relationship between business model configurations and corporate success, using companies in business-to-business markets as examples. The identification of successful business models rests upon the Qualitative Comparative Analysis (QCA), which can model complex causalities. The results show that there are 14 business model configurations that represent sufficient conditions for the success of a company in terms of sales profitability. Six of these configurations can be interpreted as key paths to corporate success and reflect the value disciplines of Treacy and Wiersema (Harv Bus Rev 71(1):84–93, 1993). Consequences regarding the change of business models can be derived from the empirical results.

Keywords Business model · Business model configuration · Business model innovation · Business model transformation · Qualitative Comparative Analysis (QCA)

JEL Classification M10 · M21 · O31

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1 Introduction

At the present time, there exists no uniform definition of the term "business model" in the relevant academic literature. A business model is often described as the "logic" behind the way companies function (Björkdahl 2009; Chesbrough 2010; Teece 2010), however, in many cases content is only referred to in very vague terms, if at all. From the perspective of business practice, which usually assumes the existence of an implicit understanding of terminology, the situation seems even more diffuse (Bieger and Reinhold 2011). This finding is counterproductive with regard to the configuration of successful business models, as it poses the question of how something can be configured that is not sufficiently clearly specified and understood.

The change of business models is seen as the key to corporate success especially in times of heightened competition, continuing globalization and the advent of new technologies (Gassmann et al. 2013). Following this trend, more and more companies actively try to redesign their business models. Large consultancies, such as McKinsey & Company, Bain & Company or the Boston Consulting Group are thus quick in offering to help companies innovate their business models (DaSilva and Trkman 2014). However, according to the authors' knowledge, there are no results that have been established on a wider empirical basis, on how successful business models should be configured. Yet this is precisely what would be necessary in order to make generalisable statements with regard to changing business models. Given the consequences, which the change of a business model can carry, this finding is all the more severe.

The outlined problem areas form the framework of the two tasks which are dealt with in this paper. On the conceptual level, the authors further develop the approach of Osterwalder and Pigneur (2011) against the backdrop of a well-founded and practice-oriented understanding of the business model concept. On the empirical level, the paper examines the relationship between business model configurations and corporate success, using companies in business-to-business (B2B) markets as examples. From these results, implications for the change of business models can be derived.

2 Conceptual foundation

In order to obtain a clearer understanding of the business model concept, it is examined from different perspectives and selected business model approaches from relevant literature are presented and compared.

2.1 The business model concept

The business model concept became widely known, especially in the nineties, due to the e-business boom (Wirtz 2010). Until this time it had been given little attention in research, despite its great importance (Morris et al. 2005). Since then it has been

used increasingly in management research (Bieger and Reinhold 2011). However, it is still unclear in which discipline the business model concept has its actual origin. It is generally assumed that it lies in the early stages of business informatics in the mid-seventies, especially in connection with the issue of business modelling with IT support (Wirtz 2010).

Even though the academic discourse on business models has become progressively more intense over the past twenty years (Zott et al. 2011) and corporate practice is increasingly occupied with this subject, there is still no generally accepted definition of the term. Therefore, it is difficult for researchers to build on current consistent findings and consequently most relevant literature is generated in separate silos (Zott et al. 2011). Morris et al. (2005) have analysed 30 business model definitions and realised that they can be divided into three levels: On a purely economic level, some authors define the business model solely as a mechanism by which a business generates income and secures ongoing cash flow. Definitions on the operative level focus on business architecture and internal processes. At the strategic level the value topic forms the central starting point. In this context, different authors (e.g., Teece 2010; Bieger and Reinhold 2011; Osterwalder and Pigneur 2011) define business models as a fundamental logic of how a company creates value, transfers it to its customers and, through appropriate mechanisms, captures it for itself. Thus definitions at the strategic level describe business models most comprehensively and therefore only approaches to this effect shall subsequently be considered.

Apart from the lack of a uniform definition, there is also disagreement about the relevant dimensions or components of a business model in the relevant literature. In the course of an analysis of business model approaches, Morris et al. (2005) have identified more than 20 different dimensions where "value proposition" and "revenue model" are the most commonly mentioned. However, the dimensions show vast differences within the various existing approaches with regards to their degree of abstraction, their detailing and their complexity (Bieger and Reinhold 2011).

To date, in the context of the business model concept, the meaning of the term business model innovation has also not been clearly defined. Basically, it is a matter of (further) developing individual business model dimensions—or the whole model—with the aim of finding new ways to create benefits for customers and partners (Schallmo 2013) by which means a fundamentally new business is established (Mitchell and Coles 2004). As with the classic product and process innovation, the degree of innovation can be radical or may only be incremental (Schallmo 2013). In the latter case this paper will refer to a business model transformation, while the radical change of a business model will be treated as business model innovation.

2.2 Discussion of selected business model approaches

Although business model research is still a young field, interest in this topic has already led to a large number of academic contributions. Bieger and Reinhold (2011) identify nearly 800 articles in the top 20 management journals from 1995 to

2010 alone, of which more than 100 deal substantially with the topic business models. Morris et al. (2005) also describe the abundance of different contributions to this topic as limitless. Selected business model approaches are presented and compared below. As mentioned in Sect. 2.1, only approaches at the strategic level, which have the value topic as a starting point, are taken into account. Essentially, the presented approaches can be differentiated on the basis of the following factors: the definition and thus the understanding of business models, the dimensions considered and their description in terms of content.

With their value-based business model approach, Bieger and Reinhold (2011) have set themselves the objective to provide a holistic and integrated description of the operations of a company. Their approach is based on the idea that the primary purpose of a company lies in the creation of value for various stakeholders and the company itself. The approach involves the six dimensions of value proposition, value creation, value communication and transfer, value capture, value dissemination and value development, which are also described in terms of their content.

In his approach, Björkdahl (2009) examines how companies can benefit from new technologies and defines a business model as the logic and the interconnected activities that create and capture value. It describes how a company uses resources, mostly technologies, as input in order to create value as economic output, which is transferred to customers and ultimately benefits the company in the form of revenues. The dimensions of the approach include value proposition and creation, customer segments, channels and value capture mechanisms, however, Björkdahl (2009) completely omits a description of the content.

Chesbrough (2010) argues that it is not new technologies or products that are critical to the success of a company, but the business models by which these are brought on the market. In his view, a business model determines how value is created, which market segments are served, how this value is captured for the company, which position the company thereby occupies in its network and how it gains advantages over the competition. Thus, the following dimensions of the approach emerge: value proposition, market segments, value chain, revenue mechanisms, cost structure and profit potential, value network and competitive strategy, although the content of these is not further described.

One of the most comprehensive business model approaches comes from Osterwalder and Pigneur (2011), who understand the business model as a fundamental principle, according to which an organization creates, transfers and captures value. In this context, the authors develop nine dimensions: customer segments, value propositions, channels, customer relationships, revenue streams, key resources, key activities, key partners and cost structure. Osterwalder and Pigneur (2011) give an overview of the content of the dimensions and explain their relationship with each other. With their "Business Model Canvas" they provide a meta-model, by which different business models can be described, using the respective design of the individual dimensions. Furthermore, Osterwalder and Pigneur (2011) point out, which dimensions can represent starting points for business model innovation and in what manner.

According to Teece (2010), a business model looks at how a company creates value for and transfers it to the customer and at the architecture of the revenues and

Table 1 Comparison of selected business model approaches

	Bieger and Reinhold (2011)	Björkdahl (2009)	Chesbrough (2010)	Osterwalder and Pigneur (2011)	Teece (2010)	Zott and Amit (2010)
Definition (analogously)	A business model describes the basic logic of how an organization creates value. It determines thereby, which values are created and how they are created, how values are communicated, transfered and captured in the form of revenues, how values are distributed and how the value logic is developed further	A business model is defined by the logic and the activities that create and capture value, as well as the connection between them	A business model determines for which market segments and how value is generated and captured, which position the company thereby occupies within its network and how it creates advantages over the competition	A business model is the basic principle, by which an organization creates, transfers and captures value	A business model describes how a company creates value for and transfers it to the customer and how the architecture of the revenues and costs looks like, which is connected to the creation and transfer of this value	A business model is a system of interrelated activities within a particular company and beyond its borders. This set of activities enables the company and its partners to create value and to capture it
Dimensions	Value proposition, value creation, value communication and transfer, value capture, value dissemination, value development	Value proposition and creation, customer segments, channels, value capture mechanisms	Value proposition, market segments, value chain, revenue mechanisms, cost structure and profit potential, value network, competitive strategy	Customer segments, value propositions, channels, customer relationships, revenue streams, key ressources, key activities, key partners, cost structure	Value proposition, market segments, cost structure, revenue streams, value capture mechanisms	Activity system: content, structure, governance
Content description of the dimensions	Yes	No	No	Yes	No	No

costs, which is connected to the creation and transfer of this value. The author focuses in particular on the relationship between technological innovations and the business model and concludes that a product or process innovation based on new technologies is often not successful without appropriate adjustment of the business model. Although the relevant dimensions of the approach are not mentioned explicitly, value proposition, market segments, cost structure, revenue streams and value capture mechanisms can be identified.

According to the approach used by Zott and Amit (2010), the business model consists of a system of interrelated activities within a particular company and beyond its borders. This set of activities enables the company and its partners to create value and to capture it for themselves. Much like Teece (2010), Zott and Amit (2010) do not give any explicit business model dimensions, but instead explain the three components of an activity system. In this context, the content denotes the range of activities that a company will have to carry out. The structure describes how these activities are related, while the governance determines who is responsible for the execution of the selected activities.

Table 1 gives an overview of the selected business model approaches. As a consequence of the selection of approaches that have the value-topic as a starting point, a relatively homogeneous picture is reflected in the respective definitions. Looking at the dimensions of the different approaches, it becomes clear that they only partially concur. The dimensions differ in both their numbers and type, whereby, in the authors' view, Osterwalder and Pigneur (2011) present the most differentiated business model dimensionalization. Only Bieger and Reinhold (2011) and Osterwalder and Pigneur (2011) use approaches that carry out a description of the content of the dimensions, whereby the description remains on a more general level.

3 Revision of the Business Model Canvas

Based on the previous discussion of selected business model approaches and with regard to the empirical study to be conducted, the Business Model Canvas by Osterwalder and Pigneur (2011) appears to the authors to be a suitable approach for the following reasons: Osterwalder and Pigneur (2011)—as well as Bieger and Reinhold (2011)—provide a description of the content of the business model dimensions, at least at a general level, which is a prerequisite for the operationalization of the dimensions in the empirical context. However, unlike Bieger and Reinhold (2011), Osterwalder and Pigneur (2011) are guided more strongly by (functional) management fields of activity in their broad business model dimensionalization, which seems to be of advantage since the empirical study should be as close to management practice as possible. However, the Business Model Canvas is being revised both on the structural and the content level.

According to the value-based marketing approach by Werani (2012), value is defined as the difference between benefits and costs and it is demonstrated that this equation is valid for the customer side as well as the supplier side. However, what changes on both sides, is the role of the price. While the price reflects the cost

component of the value from the customer's perspective, it represents the benefit component from the supplier's perspective. Thus, it is clear that generating value for the customer and the company, which is central to the business model approach of Osterwalder and Pigneur (2011), requires three value drivers that have to be looked upon separately: customer benefits, price and costs of value creation. Furthermore, the considerations of Werani (2012) also imply that the terms "value" and "benefit" should be separated, as the benefit is only one of two value components. It follows, that the revised Business Model Canvas does not refer to "value propositions", but to "customer benefits" or the "management of customer benefits". On the other hand, the "revenue streams" in the approach of Osterwalder and Pigneur (2011) are replaced by the value driver "price management". This replacement is due to the fact that the revenues of a company are composed of a volume and a price component, which must be considered separately in a business model: While the price component clearly has to be attributed to the price management, the volume component is ultimately the result of activities in other dimensions of a business model, whereby the marketing channels in particular play a key role. Due to this significance, in the revised canvas the marketing channels are modelled as separate dimensions and not as channel-sub-dimensions, as in Osterwalder and Pigneur (2011). One final amendment is the extension of the "customer segments" by market segmentation, which results in the dimension "segmentation of markets and customers" in the revised canvas. Table 2 gives an overview of the structural differences between the original and the revised Business Model Canvas. Thereby, the individual business model dimensions are deliberately formulated as activity areas in the revised canvas.

As already mentioned, Osterwalder and Pigneur (2011) carry out a content-related description of their business model dimensions, albeit on a rather general level. In order to deepen the activity-based character of the revised Business Model Canvas, explicit courses of action were defined at the content-level that describe the range of possible activities within each business model dimension. This is intended

Table 2 Structural differences between original and revised Business Model Canvas

	Original Business Model Canvas (Osterwalder and Pigneur 2011)	Revised Business Model Canvas
Dimensions	Value propositions	Management of customer benefits
	Customer relationships	Management of customer relationships
	Customer segments	Segmentation of markets and customers
	Channels	Communication management
		Distribution management
		Sales management
	Key partners	Management of key partners
	Key activities	Management of key activities
	Key resources	Management of key resources
	Cost structure	Cost management
	Revenue streams	Price management

Table 3 Courses of action in the revised Business Model Canvas

Business model dimensions	Courses of action
Management of customer benefits (cben)	Proactive identification of the customers' benefit expectations on products
	Proactive identification of the customers' benefit expectations on services
	Initiation of product innovations based on ideas of customers
	Initiation of service innovations based on ideas of customers
	Initiation of product innovations based on ideas within the company
	Initiation of service innovations based on ideas within the company
	Systematic process of innovation management
	Monitoring of the supplied customer benefits (e.g., through customer satisfaction analyses)
Management of customer relationships (crel)	Optimisation of after-sales-service (e.g., installation, customer support, repairs, complaint management)
	Regular customer talks
	Orientation on lasting customer relationships
	Proactive shaping of relationships with customers (e.g., key account management, team selling, co-creation)
Segmentation of markets and customers (segm)	Segmentation of markets (e.g., geographic, according to industry, according to size)
	Segmentation of customers according to their benefit expectations on products and services
	Segmentation of customers according to their success potential (e.g., ABC-analyses)
Communication management (comm)	Integrated communication (content-related, formal and temporal synchronisation of all communication activities)
	Multi-level communication
	Communication tailored to the various members of the customers' buying centres
	Individualized communication with customers (e.g., consultation, direct mails)
	Company-internal communication
	Communication on the product/service level
	Communication on the brand/company level
	Communication tailored to specific countries
	Use of traditional communication tools (e.g., brochures, advertisements, fairs)
	Use of digital communication tools (e.g., homepage, social media)
	Success control of communication activities
Distribution management (distr)	Distribution system with direct access/contact to the target customer (e.g., own sales office)
	Distribution system with indirect access/contact to the target customer (e.g., distributors, importers)
	Multi-channel distribution system
	Distribution over the internet (e.g., e-portals, e-shops, virtual market places)
	Success control of distribution activities

Table 3 continued

Business model dimensions	Courses of action
Sales management (sales)	Active preparation of the sales process and the sales pitch
	Active preparation of the sales process and the sales pitch with explicit consideration of the customers' buying centres
	Sales training (e.g., negotiation training, product trainings)
	Profit-oriented sales control (e.g., on the basis of contribution margins)
	Systematic management of customer data (e.g., via a CRM-system)
	Systematic offer tracking
	Success control of sales activities
Management of key partners (kpart)	Management of suppliers (e.g., supplier analyses, annual meetings)
	Implementation of competition analyses
	Active search for cooperation (e.g., alliances, joint ventures)
	Outsourcing of services to partners
	Acquisition of companies on the same value added step
	Acquisition of companies in upstream or downstream value added steps
Management of key activities (kact)	Optimisation of procurement processes (purchase processing and inbound logistics)
	Optimisation of production and production processes
	Optimisation of outbound logistics through to the target customer
Management of key resources (kres)	Management of human resources (e.g., employee recruitment, employee development, design of incentive systems)
	Management of internal knowledge
	Management of external knowledge (e.g., market information, market forecasts)
	Technology development (e.g., R&D, patents, IT systems)
	Management of financial resources (e.g., financing, liquidity, resources)
	Coordination of the management process (governance, planning, control)
	Management of access to raw materials, operating resources and plants
Cost management (cost)	Target costing (top-down costing based on target prices)
	Construction-related cost optimisation
	Process-related cost optimisation
	Structural cost optimisation (optimisation of overhead and fixed costs)
	Cost reduction by increasing quantities (economies of scale)
	Cost reduction by realising economies of scope/synergies between products and services
	Monitoring of production costs
	Monitoring of marketing costs
	Monitoring of distribution costs

Table 3 continued

Business model dimensions	Courses of action
Price management (price)	Pricing based on cost plus an additional margin
	Pricing based on the prices of competitors
	Pricing based on the supplied customer benefits
	Use of traditional pricing models (e.g., price lists, project price)
	Use of alternative pricing models (e.g., pay-per-use, pay-per-result)
	Setting of target prices (e.g., list price) by the sales department
	Setting of target prices (e.g., list price) by the marketing department/ product management
	Setting of target prices (e.g., list price) by governing bodies such as the management board or head of division
	Setting of target prices (e.g., list price) by a cross-funtional committee
	Support of the sales force in price enforcement (e.g., sales guidelines, TCO calculator)
	Monitoring of realised prices

to specify the content of the business model dimensions and at the same time provides an essential prerequisite for the subsequent empirical examination of these dimensions.

The courses of action were based on a managerial perspective, rather than on a hypothetico-deductive approach (Ulaga and Reinartz 2011; Tóth et al. 2015). The reason for this was to ensure that not only the content of the respective courses of action was complete but that, with a view to the empirical study, the contents were also linguistically understandable for management practitioners (Bortz and Döring 2006). Based on a group discussion by the diverse project team (two researchers with B2B specialism and two management practitioners with experience in B2B companies), which employed the brainstorming method (Bortz and Döring 2006), an output list of the individual courses of action that related to business model dimensions was developed. This output list was discussed with four management practitioners from four B2B companies of different industry sectors in the form of one-to-one discussions. In each case, the list of the courses of action was introduced by a researcher and changes relating to content or language, which were proposed by the respective management practitioner, were immediately noted down during the discussion. The results of the one-to-one discussions were examined jointly by the project team and integrated into a preliminary list of courses of action, which still contained variations in content and language. Based on a concluding group discussion by the project team, the final determination of the courses of action ensued, which characterize the individual business model dimensions (see Table 3). The described methodology was chosen to ensure that the business model dimensions were covered sufficiently and in a practice-oriented manner by the courses of action.

4 A configurational approach towards identification of successful business models

The empirical part of this paper deals with the question of how successful business models should be configured, based on an exploratory research approach using the example of B2B markets. The methodological approach, which has been used for the identification of successful business models is explained below, in order to subsequently describe the data collection for the empirical study and to finally present its results.

4.1 Justification and steps of Qualitative Comparative Analysis

Since the relationship between forms of business models and corporate success has to be taken into account in order to understand how successful business models have to be configured, a causal research approach is necessary. In this context, the dominant empirical method is the use of regression-type analyses, such as multiple regression and structural equation modelling. These approaches focus on causal conditions that are both necessary and sufficient (Schneider and Eggert 2014). Necessary conditions imply here that the focal outcome can only be achieved, if the respective condition exists, while sufficient conditions indicate that in the presence of the respective condition the focal outcome always results (Fiss 2007). Against the background of the target to identify the configuration of successful business models, the question arises, however, whether the regression analytical perspective of simple causalities gives answers that reflect the reality. From the perspective of the authors, this question is to be answered with a clear 'no', for it cannot be denied that there are business model dimensions that, with a view to corporate success, are necessary but not sufficient, or sufficient, but not necessary. The viewpoint represented here is supported by the fact that Schneider and Eggert (2014) generally assume that in B2B markets, which are the reference point of this paper, simple causalities do not reach far enough. They therefore advocate an approach that is able to model complex causalities (Sager and Andereggen 2012). The latter are characterized in that a distinction is made between necessary and sufficient conditions (Schneider and Eggert 2014).

The Qualitative Comparative Analysis (QCA) is a methodology that takes into account the concept of complex causalities and is therefore used in this paper. In contrast to regression analytical approaches, its goal lies not in finding "the one" model which optimally fits the respective data situation (Ragin 1987), but it follows the principle of equifinality and thus reflects the fact that there may be different sets of conditions to achieve one and the same outcome (Ragin 2000; Berg-Schlosser et al. 2009). Furthermore, the configuration theory underlying the QCA (Ragin 2000) takes account of the fact "that the same set of causal factors can lead to different outcomes, depending on how such factors are arranged" (Ordanini et al. 2014, p. 137).

With regard to the QCA there are two variants, the crisp-set QCA (csQCA) and the fuzzy-set QCA (fsQCA). Deciding which of these variants should be used,

depends on the problem in hand. The empirical study documented in this paper is based exclusively on binary coded configurations, therefore the steps that have to be passed through as part of the csQCA designed for this data situation are briefly explained below.

4.1.1 Step 1: Building a dichotomous data table

The dichotomization of conditions that are identifiable within the context of a specific problem, for example on the basis of case studies, and of the outcome which corresponds to every constellation of conditions, is generally not a trivial task, but requires a number of well justified decisions (Rihoux and De Meur 2009). Since in the empirical investigation of this paper, dichotomous data based on a questionnaire were available from the outset, the creation of a dichotomous data table is a simple task.

4.1.2 Step 2: Identification of necessary conditions

The dichotomous data table forms the basis for answering the question of which conditions are necessary for the focal outcome. To assess whether a condition can be classified as necessary, the consistency value of the particular condition is applied, whereby a threshold of 0.90 or even higher is recommended (Schneider and Wagemann 2012). The consistency value thereby indicates the percentage of cases that are consistent with the statement that the particular condition is necessary for the focal outcome (Schneider and Wagemann 2007). If a condition proves to be necessary according to the consistency value, it should further be ruled out that the necessary condition is trivial (Goertz 2006). In this context, Schneider and Wagemann (2012) propose the criterion of "relevance of necessity" as a valid criterion. It should be noted that it makes sense, not to factor in a condition that has been identified as necessary in the following Step 3 (Ragin 2008b).

4.1.3 Step 3: Constructing a truth table

In this step, the raw data table created in Step 1 is subjected to a synthesis, leading to the so-called truth table. This represents a table of configurations, whereby a configuration is a given combination of conditions associated with a focal outcome (Rihoux and De Meur 2009). Against the background of the setup of the empirical study documented in this paper (data collected by questionnaire), two decisions in particular have to be made when designing the truth table (Ragin 2008a, b). First of all, it needs to be determined which configurations, and thus rows in the truth table, are relevant and which are irrelevant. To identify the relevant configurations, a frequency threshold is determined, based on the number of cases that stand behind every configuration. If the total number of cases in an analysis is relatively small, Ragin (2008b) suggests a frequency threshold of 1 or 2. Secondly, a solution needs to be found in the case of contradictory configurations, i.e., configurations, which can lead to the focal outcome in some cases, but not in others (Ragin 1987). In this context, Rihoux and De Meur (2009) discuss different approaches, although the

proposal by Ragin (2008b) is followed in this paper and a more probabilistic strategy is pursued to obtain consistent rows in the truth table. To this end, the measure of set-theoretic consistency is applied, which indicates the proportion of cases in each truth table row that display the focal outcome. Values below 0.75 indicate substantial inconsistency, which means the outcome in the truth table should only be set to 1 (i.e., focal outcome achieved) in the case of configurations with a consistency value 0.75 or above. For all other configurations the outcome is to be coded with 0.

4.1.4 Step 4: Boolean minimization

The information contained in the generated truth table is logically minimized, based on Boolean algebra, whereby the software used—in this case fs/QCA 2.5 (Ragin and Davey 2009)—does not draw on cases, but on the configurations represented in the truth table. The number of cases behind each configuration is thus irrelevant to the minimization process, however, once the result has been obtained in the form of the solution formula, each individual case can then be linked to the solution formula (Rihoux and De Meur 2009).

In general, the truth table has more rows than would arise as a result based on the empirically observable configurations. As usually, not all logically possible sets of conditions of a truth table (for example, six conditions $2^6 = 64$ constellations), can actually be observed empirically. This phenomenon is referred to as "limited diversity" and implies that the truth table usually also includes "logical remainders" (i.e., unobserved sets of conditions) (Schneider and Wagemann 2007). In view of the Boolean minimization process, this is significant in so far as the software fs/QCA 2.5 (Ragin and Davey 2009) generates three solutions in standard analysis mode—the mode recommended by Ragin and Sonnett (2004) in the presence of logical remainders—which take into account the logical remainders in different ways (Schneider and Wagemann 2012). The first of these is the complex or conservative solution that makes no assumption about the logical remainders. Therefore this solution is based solely on truth table rows that are deemed sufficient for the focal outcome based on empirical evidence. Secondly, the most parsimonious solution, which "starts from the principle that only those remainders are eligible that contribute to parsimony (aka simplifying assumptions)" (Schneider and Wagemann 2012, p. 176) and within simplifying assumptions allows both for easy and difficult counterfactuals. And thirdly, the intermediate solution, which, in contrast to the most parsimonious solution, only resorts to easy counterfactuals, i.e., simplifying assumptions about logical remainders that have been justified on theoretical grounds. The intermediate solution is thereby less parsimonious than the most parsimonious solution and more parsimonious than the complex solution.

4.1.5 Step 5: Identification of sufficient conditions

Formulae for the complex, the most parsimonious and the intermediate solution arise as a result, based on the Boolean minimization. These formulae describe which conditions or combinations of conditions, and thus which paths, lead to the focal

outcome. However, it needs to be clarified, whether the particular conditions or combinations of conditions can be classified as sufficient. The identification of sufficient conditions thus follows the identification of necessary conditions (see Step 2), which corresponds to the approach proposed by Schneider and Wagemann (2010).

To assess whether a condition or combination of conditions can be considered sufficient, the consistency value is used, whereby consistency levels (well) above 0.75 are advisable (Schneider and Wagemann 2012). The consistency value thereby indicates the percentage of cases that are consistent with the statement that the particular condition or combination of conditions is sufficient for the focal outcome (Schneider and Wagemann 2007). Woodside and Zhang (2012) point out, that consistency is akin to significance metrics in statistical hypothesis testing.

For a condition or combination of conditions identified as sufficient, the coverage index, which is akin to effects size in statistical hypothesis testing (Woodside and Zhang 2012), should also be noted. Regarding coverage, a distinction is to be made between raw and unique coverage. While the former indicates the proportion of cases of the focal outcome that are covered by a sufficient path of the solution formula, the latter indicates the proportion of cases of the focal outcome that are *exclusively* covered by a sufficient path of the solution formula (Schneider and Wagemann 2012). From these definitions follows that in the absence of overlap of the individual paths the raw coverage corresponds to the unique coverage. In the case of strong path overlaps the individual paths have high raw coverages, however, they are almost expendable if considered individually (i.e., have low unique coverages). As a consequence, the unique coverage also indicates which path is due more weight empirically (Schneider and Wagemann 2007).

It should be noted that fs/QCA 2.5 (Ragin and Davey 2009) also indicates the consistency and coverage values for the total solution, i.e., the individual paths that are linked with a logical "OR". Thus, also the quality of the complete solution can be estimated.

4.2 Data collection

The study was designed as an online survey of the largest B2B companies in Austria, defined by the criterion of net sales, whereby the relevant companies were identified on the basis of the trend TOP 500 ranking (Verlagsgruppe NEWS 2014). This ranking was used in order to resolve the configuration of successful business models by reference to companies that can be assumed to have a high level of management professionalism. As B2B companies were defined as businesses that aim their sales processes at companies and other organizations (institutions, governments) (Kleinaltenkamp 1994), the TOP 500 ranking had to be revised to exclude companies that do not meet this definition. Thus 213 B2B companies resulted, of which, due to the expected affinity for the business model issue, one board member or managing director respectively was contacted by telephone (possibly twice) and asked to participate in the study. Fifty-one fully completed questionnaires were obtained by this procedure, which corresponds to a response rate of 23.9 %. It is noticeable that the actual sales distribution for the 51 companies

Table 4 Actual and expected sales distribution of the study participants

Sales	Actual sales distribution (%)	Expected sales distribution (%)
<€250 m	25.5	32.9
€251 m–€500 m	25.5	31.9
€501 m–€750 m	9.8	7.5
€751 m–€1000 m	13.7	5.2
>€1000 m	25.5	22.5
	100.0	100.0

Chi-square goodness-of-fit test: $\chi^2 = 7.451$; $df = 4$, $p = 0.114$

Table 5 Actual and expected distribution of industry sectors of the study participants

Industry sectors (according to the trend TOP 500 ranking)	Actual distribution of industry sectors (%)	Expected distribution of industry sectors (%)
Automotive	7.8	6.9
Building industry	11.7	8.6
Chemicals	5.9	8.0
Commerce	3.9	1.6
Electrics/electronics	2.0	5.3
Energy	2.0	5.9
Fire fighting technology	2.0	0.5
Food	2.0	0.5
Glass/non-metallic minerals	2.0	0.5
Logistics	3.9	3.7
Mechanical engineering	21.5	21.5
Metal	15.6	17.2
Paper/packaging/wood	13.7	12.9
Plastics	2.0	5.9
Printing	2.0	0.5
Textiles	2.0	0.5
	100.0	100.0

Qui-square goodness-of-fit test: $\chi^2 = 16.252$; $df = 15$, $p = 0.365$

(the smallest company has a turnover of €157 m, the largest of €14 bn) does not differ significantly from the expected distribution based on the population of the 213 companies (see Table 4). In terms of industry sectors it becomes clear that 12 industry sectors that already rarely occur in the population (frequency ≤ 7), are not represented in the study. However, the 16 remaining (main) industry sectors of the population are reflected adequately by the study (see Table 5).

The online questionnaire was structured as follows: After an introduction to the subject of the questionnaire followed eleven blocks that dealt with the dimensions of the revised Business Model Canvas. To ensure all participants shared the same

substantial understanding of all business model dimensions (i.e., conditions of the csQCA), a list with the respective courses of action (see Table 3) was presented at the beginning of each block. Subsequently, it was inquired how intensely—in terms of activities and/or personnel placement—the particular company had engaged with each respective business model dimension in its main business area within the last financial year, whereby the two options were "less intense" (absence of condition—0) and "intense" (presence of condition—1). The dichotomous nature of the response options was chosen, because it is assumed that the success or failure of a business model fundamentally depends on a clear prioritisation within the individual business model dimensions. Since it is unlikely that a company does not deal with a business model dimension at all, it was decided to offer the options of "less intense" and "intense" for participants to show the priorities of their engagement. The chosen scaling caused no evaluation-related problems in the questionnaire-pretest; on the contrary, it was evaluated by the respondents as a time-efficient opportunity to clearly express their priorities.

Following the eleven blocks related to the business model dimensions, the company's success and thus the outcome of the csQCA was captured. In this regard, a relative measure was used and the respondents were asked to estimate the sales profitability for the last financial year in the main business area of their company compared to the competition. The two response options were "average or below average" (absence of outcome—0) and "above average" (presence of outcome—1). A dichotomous scaling was used in this context also, since the question at the heart of the study is the configuration of business models that are successful (versus less successful) compared to the competition, whereby all business models that showed an above-average sales profitability were deemed to be successful. Even though other indicators would also be possible, e.g., turnover or market share, sales profitability was used as the criterion for success, since the economic responsibility of a company, that is, to be profitable, "remain[s] the bedrock foundation for business" (Carroll 2004, p. 117). The online questionnaire concluded with some statistical information about the participating companies.

4.3 Empirical results

On the one hand the empirical results can be used to answer the question for which of the eleven dimensions of the revised Business Model Canvas applies that an intensive involvement with the relevant dimension represents a necessary condition for the success of the company and thus an above-average sales profitability. The consistency values relevant in this context range from 0.694 to 0.972, with only the intensive engagement with the management of customer relationships exceeding the required threshold of 0.90. The criterion of the "relevance of necessity", used to identify a trivial necessary condition, yields, however, a very low value of 0.187, so that the condition of an intensive engagement with the management of customer relationships has to be classified as trivial and thus as an irrelevant necessary condition. The "OR" connection of the three business model dimensions of management of customer benefits, price management and cost management, which is justifiable on theoretical grounds (Schneider and Wagemann 2012) by the value-

Table 6 Reduced truth table

segm*	price*	comm*	distr*	sales*	kpart*	kact*	kres*	cost*	cben*	crel*	Sales profitability	Number of cases	Consistency
0	0	0	1	0	0	0	1	1	1	1	1	1	1.00
0	0	1	1	0	1	1	1	1	1	1	1	1	1.00
0	1	0	0	0	1	1	0	1	1	1	1	1	1.00
0	1	0	1	1	1	1	1	1	0	1	1	1	1.00
0	1	0	1	1	1	1	1	1	1	1	1	1	1.00
0	1	1	0	1	1	1	1	1	1	1	1	1	1.00
0	1	1	1	1	1	1	1	1	0	1	1	1	1.00
1	0	0	0	1	1	1	1	1	1	1	1	1	1.00
1	0	0	1	0	0	0	1	0	0	1	1	1	1.00
1	0	1	0	1	1	0	1	1	0	1	1	1	1.00
1	0	1	1	0	1	0	1	0	0	1	1	1	1.00
1	1	0	0	0	1	1	1	1	1	1	1	1	1.00
1	1	0	0	1	1	0	1	1	0	0	1	1	1.00
1	1	0	0	1	1	1	1	1	1	1	1	1	1.00
1	1	0	1	1	0	1	1	1	0	1	1	1	1.00
1	1	0	1	1	1	1	1	1	1	1	1	1	1.00
1	1	1	0	1	0	0	0	0	1	1	1	1	1.00
1	1	1	0	1	0	1	0	0	1	1	1	1	1.00
1	1	1	0	1	0	1	0	1	1	1	1	1	1.00
1	1	1	1	1	1	1	0	1	0	1	1	1	1.00
0	1	1	1	1	1	1	1	1	1	1	1	2	1.00
1	1	1	1	1	0	1	1	1	1	1	1	4	1.00
1	1	1	1	1	1	1	1	1	1	1	1	11	0.818
1	1	1	0	1	0	1	1	1	0	1	0	2	0.500

Table 6 continued

segm*	price*	comm*	distr*	sales*	kpart*	kact*	kres*	cost*	cben*	crel*	Sales profitability	Number of cases	Consistency
0	0	0	0	0	0	1	0	0	1	0	0	1	0.000
0	1	1	0	0	1	1	1	1	0	0	0	1	0.000
0	1	1	0	1	0	1	1	0	0	1	0	1	0.000
0	1	1	0	1	0	1	1	1	1	1	0	1	0.000
0	1	1	1	1	1	0	1	0	0	1	0	1	0.000
0	1	1	1	1	1	1	0	1	1	1	0	1	0.000
0	1	1	1	1	1	1	1	0	0	1	0	1	0.000
1	1	0	0	1	1	1	1	0	0	1	0	1	0.000
1	1	0	1	1	0	1	0	0	0	1	0	1	0.000
1	1	0	1	1	1	0	0	1	0	1	0	1	0.000
1	1	1	0	1	1	1	1	1	0	1	0	1	0.000
1	1	1	1	0	0	1	1	1	1	1	0	1	0.000

* Abbreviations of conditions according to Table 3

based marketing approach by Werani (2012), also exceeds the consistency threshold with 0.944. However, based on the "relevance of necessity" criterion (0.118) it also represents an irrelevant necessary condition. Thus it becomes clear that neither the intensive engagement with individual dimensions nor with a combination of dimensions of the revised Business Model Canvas is a necessary condition for an above-average sales profitability.

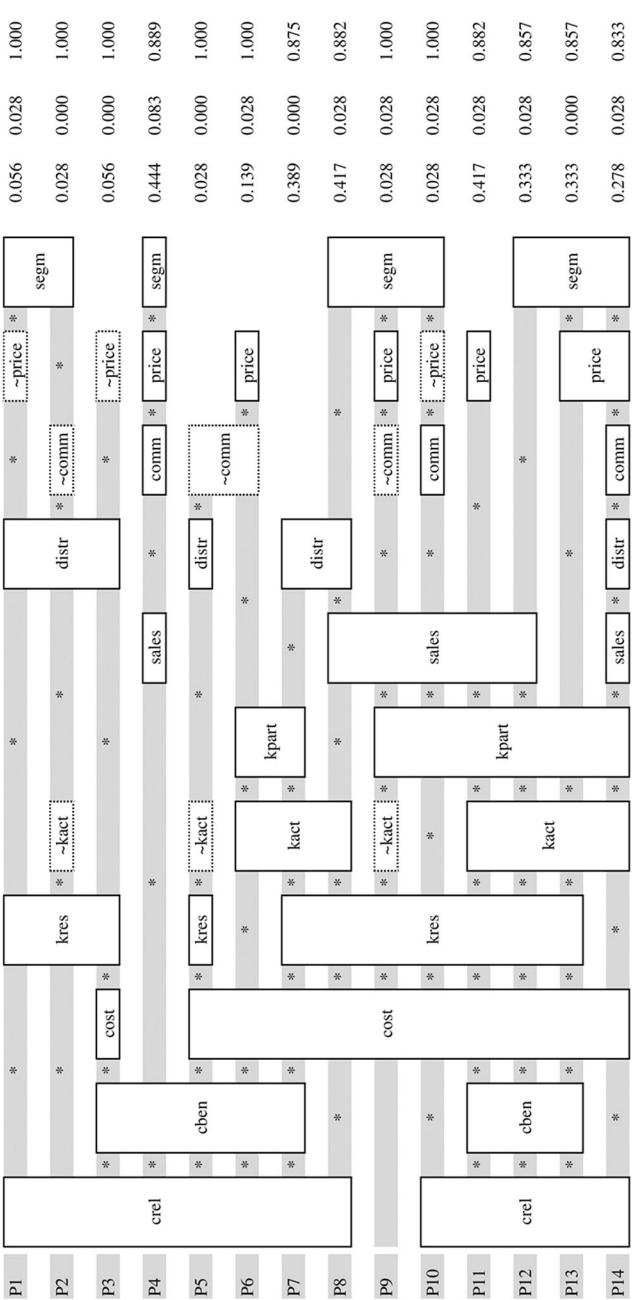
In order to answer the question of sufficient conditions or combinations of conditions for an above-average sales profitability, the result of the Boolean minimization of the information included in the truth table is needed. Table 6 represents the truth table, which, for clarity's sake, has been reduced to exclude the logical remainders. It is based on the following two decisions. Firstly, in the light of the relatively small sample size of this study to identify relevant configurations, a frequency threshold of 1 is chosen.[1] And secondly, the outcome (i.e., sales profitability) of the configurations that do not reach a set-theoretic consistency of 0.80 or above is coded as 0.

Schneider and Wagemann (2010) point out that in a QCA study the number of conditions should be kept at a moderate level, whereas in the present case there is a comparatively high number of conditions. These conditions, however, are in accordance with the recommendations of Schneider and Wagemann (2010) the result of appropriate conceptual considerations (see Sects. 2.2, 3) wherewith they are duly justified and due to considerations of content cannot simply be reduced. On the other hand, the strategies discussed in the relevant literature (Amenta and Poulsen 1994) are not effective either in reducing the number of conditions in the present case. Higher-order constructs (Ragin 2000) for example, such as the "OR" connection of the business model dimensions of communication, distribution and sales management with the aim of forming a superordinate construct "channels", would thus *a fortiori* override differentiations of the conditions that are necessary in terms of content.

This raises the question of how, in the light of the relatively high, but ultimately necessary number of conditions and the resulting high number of logical remainders (Schneider and Wagemann 2010), sufficient conditions can be identified in a viable way. This question can be answered to the effect that the intermediate solution is interpreted by the solutions that have been calculated via the software fs/QCA 2.5 (Ragin and Davey 2009) in the course of the Boolean minimization process. On the one hand, the intermediate solution reduces drastically the number of logical remainders that need to be taken into account and on the other hand only draws on easy counterfactuals, i.e. simplifying assumptions about logical remainders that have been justified on theoretical grounds (see Sect. 4.1.4).

Following Cheng et al. (2013), Fig. 1 visualizes the intermediate solution of the csQCA and reflects the calculated consistency and coverage values. Each path is based on a logical statement as part of the formal solution formula, whereby the solution formula consists of an "OR" connection of the individual logical statements. Taking exemplary account of paths 1 and 14, in formal notation the

[1] As explained in Sect. 4.1.4, the number of cases behind each configuration is irrelevant to the Boolean minimization process. Therefore the varying number of cases in Table 6 cannot distort the QCA results.



Rectangles with solid lines indicate the presence of conditions. Rectangels with dashed lines and tilde (~) indicate the negation (absence) of conditions. Blank cells represent "don't care" conditions. Stars (*) denote a logical "AND" conjunction. Abbreviations of conditions according to Table 3.

Fig. 1 csQCA output—intermediate solution

following solution formula for explaining an above-average sales profitability arises:

$$\begin{aligned} &\text{crel}^{*}\text{kres}^{*}\text{distr}^{*} \sim \text{price}^{*}\text{segm} + [\ldots] \\ &\quad + \text{crel}^{*}\text{cost}^{*}\text{kact}^{*}\text{kpart}^{*}\text{sales}^{*}\text{distr}^{*}\text{comm}^{*}\text{price}^{*}\text{segm} \\ &\quad \rightarrow \text{above-average sales profitability.} \end{aligned}$$

Where the tilde ($\sim$) represents the negation of the condition of an intensive engagement with the respective business model dimension, the star (*) denotes a logical "AND" conjunction of conditions, the plus sign (+) symbolizes a logical "OR" connection and rightward arrow ($\rightarrow$) expresses the fact that the combinations of conditions apprehended by each individual logical statement lead to an above-average sales profitability. A condition that does not occur in a logical statement is denoted as a "don't care" condition and can thus assume a value of either 0 or 1.

The consistency values that appear on the right-hand side of Fig. 1 lie well above the required threshold of 0.75. This implies that each of the 14 paths or business model configurations can be considered to be a sufficient condition for an above-average sales profitability.

An analysis of the coverage values in Fig. 1 shows that the raw coverage never corresponds to the unique coverage and therefore the 14 paths strongly overlap. The low unique coverages indicate here that empirically no single path is of particular importance. However, the raw coverages show that each of the paths P4, P7, P8 and P11 to P13 explains more than 30 % of the cases with above-average sales profitability—albeit with considerable overlap. According to calculations, the median of the presence of business model dimensions or conditions across all paths is 8. Assuming that those business model dimensions are of high relevance, whose frequency of presence across all paths corresponds to or is higher than the median, the relevant dimensions are the management of customer relationships (13), cost management (11), the management of key resources (11), the segmentation of markets and customers (9), the management of customer benefits (8) and the management of key partners (8). In terms of sales profitability, these dimensions can thus be regarded as key drivers of the success of business models in B2B markets. Since the identified drivers of success in the above paths P4, P7, P8 and P11 to P13 have a presence between 50.0 and 75.0 %, calculated for all business model dimensions represented in the respective paths, these paths ultimately represent sufficient key paths to corporate success in terms of sales profitability.

According to the solution consistency that appears in Fig. 1, the total of the 14 identified business model configurations can be considered to be a sufficient condition for an above-average sales profitability. The solution coverage of 91.7 % indicates that a very high proportion of cases with above-average sales profitability can be explained by the 14 business model configurations.

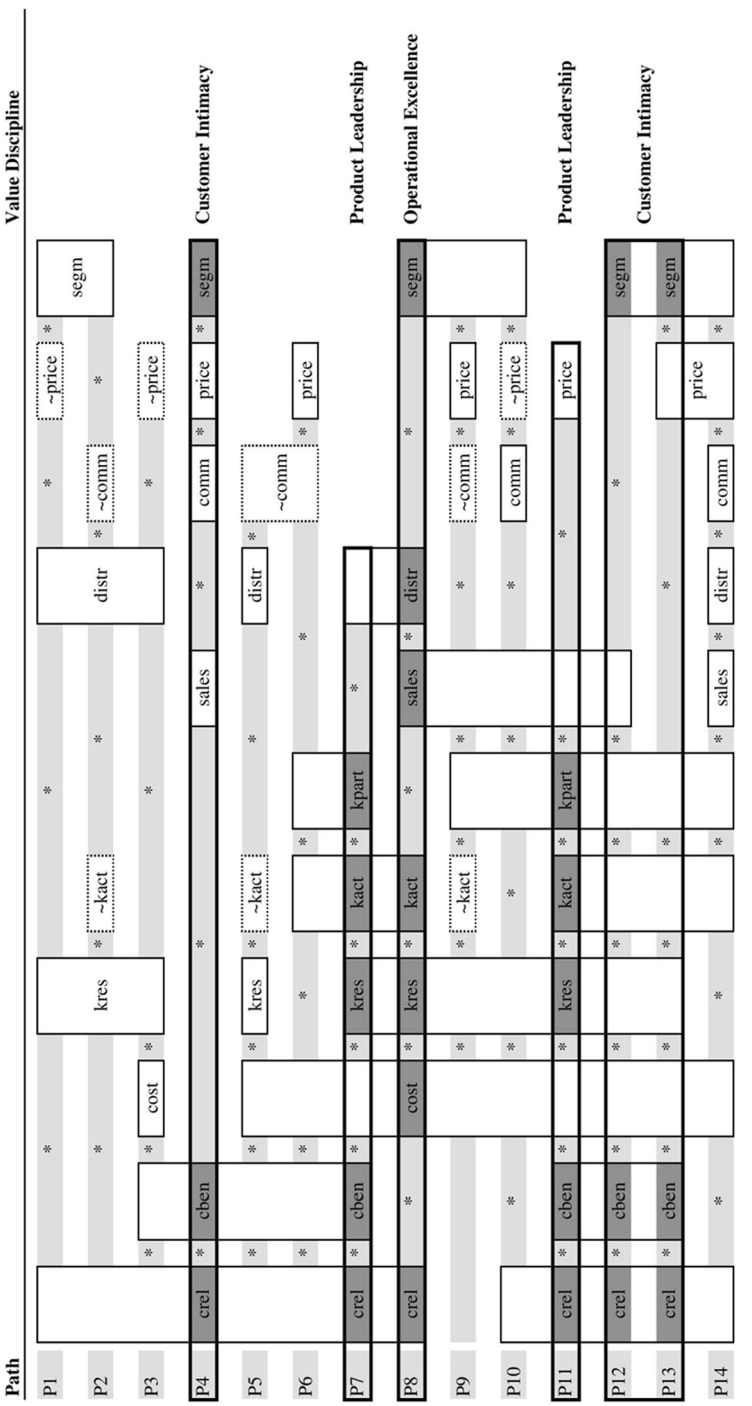
In summary, the empirical results show that in B2B markets an intensive engagement with the eleven suggested business model dimensions is not a *necessary* condition for achieving above-average sales profitability. However, 14 business model configurations emerge that in terms of *sufficient* conditions lead to this result. Hereinafter, the content of these configurations shall be interpreted.

The starting point for this interpretation is the fact, that the revised Business Model Canvas, which forms the basis of the empirical study, follows the logic, that a business model is characterised by how value is created, transferred to the customer and captured for the company. This means, with reference to the considerations of Treacy and Wiersema (1993), that a business model is shaped by the company's underlying value discipline. Each of the three value disciplines developed by Treacy and Wiersema (1993)—operational excellence, customer intimacy and product leadership—represents a specific business model focus with the aim to differentiate the company from the competition and thus make it successful. Thus it stands to reason to sketch the constitutive elements of the three value disciplines with reference to Treacy and Wiersema (1993) and to match them with the identified 14 business model configurations. In order to increase the plausibility of the argumentation, the corresponding business model dimensions are directly assigned to each constitutive element.

Operational excellence: The first value discipline is characterised by a clear focus on the minimisation of cost (→ cost). Central to this are an efficient value generation based on corresponding processes and resources (→ kact, kres) and an efficient value transfer to the customer (→ sales, distr). The efficiency-driven business model is thus pro-actively aligned to specific customer segments (→ segm). Last but not least, the business model demonstrates a clear focus on quality: The aim is to avoid problems in processes, products and services that lead to a loss of efficiency. In this respect interaction with customers and a complaint management (→ crel) can provide important contributions. Contrary to the other value disciplines, customer intimacy and product leadership, operational excellence *does not* have to show a focus on customer benefits (→ cben) and therefore often represents an inside-out approach. If the aforementioned constitutive elements of operational excellence, or the corresponding specific combination of business model dimensions are contrasted with the 14 business model configurations or paths, it becomes evident, that this combination only occurs in P8 (see Fig. 2). This path thus represents the value discipline of operational excellence.

Customer intimacy: It is characteristic for the second value discipline that only a few market or customer niches are occupied (→ segm) and, on the basis of a proactive customer orientation (→ crel), a strict focus on the customer benefits (→ cben) in these niches is realised. The specific combination of business model dimensions that is linked to this relationship-driven approach is only evident in paths P4, P12 and P13 (see Fig. 2), which therefore represent the value discipline of customer intimacy.

Product leadership: The final value discipline is based on leading edge products and services and therefore is innovation-driven (→ cben). In order to implement innovations quickly and efficiently, appropriate resources and processes (→ kres, kact) are necessary. Thereby, it is possible that ideas for innovations develop outside of a company (→ crel), as well as within (→ kres). Last but not least product leadership also means leveraging expertise across organisational boundaries (→ kpart). The combination of business model dimensions that is characteristic for product leadership is depicted by paths P7 and P11, as well as by the customer intimacy paths P12 and P13 (see Fig. 2). However, in contrast to customer intimacy,



Abbreviations of conditions according to Table 3.

Fig. 2 Business model configurations and value disciplines

Table 7 Industry sectors and sufficient key paths to corporate success in terms of sales profitability

	P4	P7	P8	P11	P12	P13
Automotive (n=4)	25.0%	25.0%	25.0%	25.0%	25.0%	50.0%
Building industry (n=6)	33.3%	16.7%	16.7%	16.7%	16.7%	16.7%
Mechanical engineering (n=11)	45.5%	45.5%	36.4%	45.5%	36.4%	36.4%
Metal (n=8)	12.5%	37.5%	12.5%	12.5%	12.5%	12.5%
Paper/packaging/wood (n=7)	28.6%	14.3%	57.1%	28.6%	14.3%	14.3%

product leadership *does not* require a segmentation approach (→ segm) (see Fig. 2), whereby only paths P7 and P11 represent the value discipline of product leadership. This value discipline is ultimately about inspiring a wider market with leading edge products and services, which render obsolete the offers of competitors due to their level of innovation.

Looking at the three value disciplines identified in Fig. 2 it is noticeable that these coincide with the above-mentioned sufficient key paths to corporate success in terms of sales profitability (P4, P7, P8 and P11 to P13). In terms of content, this means that an above-average sales profitability can be achieved, in particular, when a company configures its business model in such a way that it is built on one of the value disciplines. However, the fact that eight paths in Fig. 2 are not associated with a value discipline, but can be interpreted as variants of one or more value disciplines, makes it clear that it is not only the exclusive focus on one of the ideal–typical value disciplines that helps provide an above-average sales profitability.

As can be seen in Sect. 4.2, the companies that participated in the study differ in size (Table 4) and industry sector affiliation (Table 5). This gives rise to the question: will specific patterns be observed that relate to industry sectors or company size with regard to the identified value disciplines—and therefore to the sufficient key paths to corporate success in terms of sales profitability (P4, P7, P8 and P11 to P13)? Since it is not possible, due to methodological considerations (number of logical remainders), to design Qualitative Comparative Analyses that differentiate between industry sectors and company size, the relative frequencies of the paths P4, P7, P8 and P11 to P13 within industry sectors and size classes are subsequently analysed. However, the results can only be regarded as indicating a tendency, since they are only supported by a small number of cases—especially when it comes to industry sectors.

Looking at Table 7 (only industry sectors with an absolute frequency of at least four were taken into consideration) it can be seen that all sufficient key paths to corporate success in terms of sales profitability (and therefore all value disciplines) play a part in all industry sectors. However, as the industry sector specific path distribution shows, the role of the individual paths varies from industry to industry, whereby the most frequently occurring paths per industry sector are highlighted in grey in Table 7. Even though the results only indicate a tendency, their content is certainly plausible. For example, the paper and packaging industry is presently in cut-throat competition, which particularly involves efficiency-increasing measures, which is reflected by a focus on path P8 (operational excellence). It is also understandable that the main focus of the automotive industry is path P13, because

Table 8 Company size and sufficient key paths to corporate success in terms of sales profitability

	P4	P7	P8	P11	P12	P13
Smaller companies (n=25)	28.0%	16.0%	24.0%	24.0%	20.0%	16.0%
Larger companies (n=26)	34.6%	38.5%	34.6%	34.6%	26.9%	30.8%

on the one hand, all suppliers represented here must focus strictly on the customers and their requirements, and on the other hand, they are forced to be efficient due to price demands made by their customers. In other words: they occupy the value discipline of customer intimacy with special consideration to aspects of efficiency, as is expressed in path P13.

A final look at Table 8 shows that all sufficient key paths to corporate success in terms of sales profitability (and therefore all value disciplines) occur in smaller companies (< median turnover in the main business area of €383 m) as well as larger companies (> median turnover in the main business area of €383 m). The company size specific path distribution indicates, that based on the top 3-paths highlighted in grey, the value disciplines of operational excellence (P8), customer intimacy (P4) and product leadership (P7, P11) have roughly the same significance within the smaller as well as within the larger companies (taking into consideration overlaps between P7 and P11).

5 Discussion

5.1 Managerial implications

Based on the empirical findings documented in the previous section, 14 configurations of business models of B2B companies that achieve an above-average sales profitability could be demonstrated. Out of these 14 configurations, six can be classified as sufficient key paths to corporate success in terms of sales profitability. As shown above, these six paths reflect the three value disciplines of operational excellence, customer intimacy and product leadership developed by Treacy and Wiersema (1993). From this it follows, that business models with a focus on one of these value disciplines have the basic potential to achieve an above-average sales profitability. However, as explained in Sect. 4.3 (situation specific) variants of the ideal–typical value disciplines can also aid companies in achieving an above-average sales profitability. Even though the empirical results indicate that all value disciplines are relevant in all examined industry sectors, industry specific prioritisations can be observed. Although this finding can only be regarded as indicating a tendency due to the small number of cases, the plausibility in terms of content of the demonstrated prioritisations suggests that the probability for success of a business model configuration with regard to profitability is raised when it takes the respective industry sector characteristics into account. Based on the available empirical results, there are no indications for a company-size dependent application of the three value disciplines.

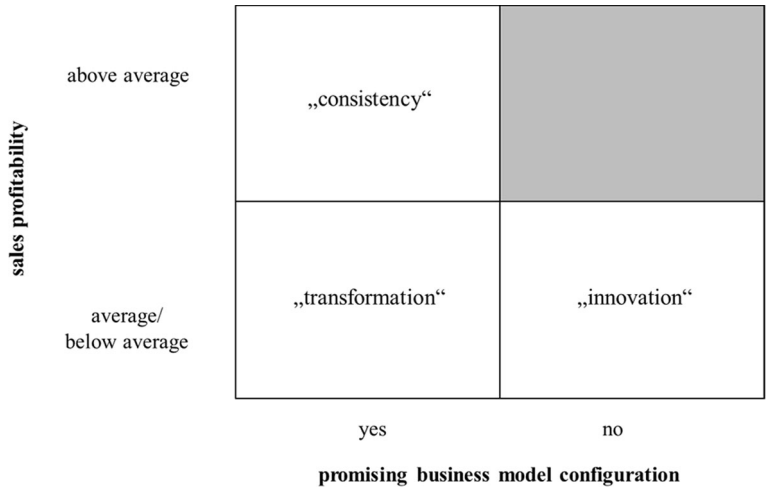


Fig. 3 Decision matrix for dealing with business models

The sample on which the empirical study is based includes also companies that achieve only an average or below-average sales profitability (see Table 6)[2]—despite the fact that the sample was generated from the trend TOP 500 ranking (Verlagsgruppe NEWS 2014) and it can therefore be assumed that the companies have a high level of management professionalism (see Sect. 4.2). Contrasting the achieved sales profitability with the selected business model configuration leads to the decision matrix depicted in Fig. 3, which allows conclusions regarding the change of business models.

If a company adopts one of the 14 promising business model configurations shown in Fig. 1, an above-average sales profitability may result, which will only be the case, however, if the right actions are taken within the respective business model dimensions. Thus, the "consistency" position shown in Fig. 3 is about the sustained follow-up of a consistency management between the individual business model dimensions (adequate prioritisation of the dimensions critical to success for the particular configuration) and within these dimensions. The latter point implies, that within each of the prioritised business model dimensions the correct actions should be followed sustainably. The spectrum of potential actions is delineated by the courses of action shown in Table 3. In the "consistency" position, changes of the business model are not essential. However, it has to be pointed out that this interpretation of the "consistency" position purely relates to a certain point in time. When using a dynamic perspective, there may certainly be reasons that would demand that this position should be abandoned. Examples include an expected

[2] The fact that the sample includes more companies with an above-average sales profitability than companies with an average or below-average sales profitability does not imply biased results, since according to the aim of the study, the csQCA is used exclusively to explain the outcome of an above-average sales profitability.

change of the general conditions that are relevant to the business model or the anticipated imitation of the business model by competitors.

If one of the 14 promising business model configurations is chosen, but *without* a consistency management *within* the business model dimensions critical for success in terms of sales profitability (i.e., wrong actions are taken), only an average or below-average sales profitability is expected. Thus, reference is made to promising business model configurations, such as those in Table 6/data row 23, which only partially lead to above-average sales profitability. If a company is located in the lower left quadrant of Fig. 3, a business model transformation is required. This means that, although the company still addresses the chosen business model dimensions, it must take the right actions within this dimensions. Thus, the transformation of a business model refers to an incremental change of the business model, as already mentioned in Sect. 2.1.

If a company is located in the lower right quadrant of Fig. 3, none of the 14 promising business model configurations was selected and, consequently, only an average or below-average sales profitability is expected. By addressing the wrong business model dimensions, the selected contents do not matter in this position. What is needed is a radical change of the business model and thus a business model innovation. This consists of choosing a new and promising combination of business model dimensions and to design these dimensions in a suitable manner.

What is left in Fig. 3 is the grey shaded quadrant on the top right. This describes cases in which above-average sales profitability emerges, even though none of the 14 promising business model configurations were chosen. Thus, it refers to paths that do not appear in Fig. 1 and were therefore not identified in the present study. However, their number is very low, since the solution coverage of the csQCA lies at 91.7 % (see Fig. 1).

In summary, it appears on the basis of the foregoing considerations that changing business models recipe-book-like and without any preceding analysis would be counterproductive. For, firstly, this approach ignores the fact that not every business model needs to be revised from the outset. Secondly, it is not taken into account that the change of a business model does not necessarily need to have a radical character and therefore a distinction has to be made between the (complex) innovation and the (more easily accomplished) transformation of a business model. And thirdly, recipes involve the risk of an arbitrary approach to problem solving that is not based on sound knowledge as, for example, that of promising business model configurations and is thus usually condemned to fail from the outset.

5.2 Theoretical implications

In this paper the Business Model Canvas by Osterwalder and Pigneur (2011) was revised. On the one hand, this led to a structural revision with the aim to formulate all relevant business model dimensions as logically consistent activity areas of a company. On the other hand, the more general description of the business model dimensions of Osterwalder and Pigneur (2011) has been replaced on the content level by explicit courses of action, which describe the range of possible activities within each business model dimension. The revised Business Model Canvas should

now be a business model concept that is both conceptually sound and suitable for use in the empirical context.

In their conceptional considerations Treacy and Wiersema (1993) assume that a business model is shaped by the company's underlying value discipline, whereby they identify operational excellence, customer intimacy and product leadership as business model foci, which differentiate the company from the competition and thus make it successful. On the one hand, the empirical results of this study confirm the considerations of Treacy and Wiersema (1993), since an above-average sales profitability can be achieved especially when a company configures its business model in such a way that it is built on one of the three value disciplines. On the other hand, the results also show that in management practice, apart from the ideal–typical value disciplines sketched by Treacy and Wiersema (1993), variants of one or more value disciplines also promise success.

5.3 Methodological implications

From a methodological perspective, this study shows that, in view of the objective to identify the configuration of successful business models, it was the right decision to select the QCA as methodological approach. Firstly, the empirical results show that it is useful to differentiate between necessary and sufficient conditions for successful business models and thus to take the perspective of complex causalities characteristic for the QCA. Secondly, it becomes evident that there are different business model configurations, all of which lead to above-average sales profitability and thus to the same outcome. The logic of regression analytical approaches to find "the one" model that optimally fits the respective data situation (i.e., negation of the concept of equifinality) therefore appears unsuitable against the backdrop of the problem treated in this paper. Thirdly, the empirical results also establish that business model configurations that are based on the same business model dimensions but are differently arranged, can lead to different sales profitability. Hence the point of view of the configuration theory underlying QCA (Ragin 2000) is confirmed. Last but not least should be noted that the QCA actively addresses the problem, which is generally characteristic for empirical research, that not everything that is observable can actually be observed ("limited diversity") (Schneider and Wagemann 2007). For, contrary to the usual statistical methods, the user is forced to make conscious decisions in dealing with non-observable facts (i.e., the logical remainders).

5.4 Limitations and future research

Arguably, the most serious limitation of the present study is that due to the comparatively high, but ultimately necessary number of conditions in the QCA (see Sect. 4.3) a high number of logical remainders is present. As already explained, this problem has been accounted for by the interpretation of the intermediate solution of fs/QCA 2.5 (Ragin and Davey 2009). However, the relation between observed configurations and logical remainders could be improved by using a larger sample in

future (replicating) studies. In the present study, however, this was not possible, despite advanced notice and follow-up by telephone.

A second limitation relates to the fact that the sample of the study is based on the trend TOP 500 ranking (Verlagsgruppe NEWS 2014). Thus, the study results are primarily valid for the largest—with respect to turnover—B2B companies in Austria.

A third limitation of the present study is that it is valid for only one country. Since a business model dimension, like the management of customer relationships, may well vary in meaning according to specific cultures, future studies could also involve other countries.

It should be noted that the B2B companies represented in the study can be assigned to different industry sectors and are of different size. Since industry or company size specific Qualitative Comparative Analyses may lead to more differentiated results than the ones reflected in Tables 7 and 8, this opens another possibility for further studies. Due to the available sample size these analyses were not expedient in the present study.

In this study, the question of whether a business model configuration is successful or not is based on the sales profitability for the last financial year, which indicates a relatively short time frame. In the case of newly implemented business model configurations, which first need to take effect, this could lead to the observed corporate success not being due to these new configurations, but to a spill-over from the formerly established business model configurations. Therefore it is possible that successful business model configurations are classified as unsuccessful, and vice versa. Since the relatively short period under observation was chosen deliberately in order to achieve unambiguous statements about sales profitability with reference to the last financial year, it seems reasonable to eliminate the above-mentioned potential bias through replications of the study. Through such replications it can also become evident which business model configurations are successful in the longer term.

A final, general limitation of the present study is the fact that corporate success in terms of sales profitability cannot always be explained in terms of the business model, even if this is undoubtedly a central driver. Furthermore, the identified business model configurations *per se* are also not able to fully explain corporate success in terms of sales profitability—but they can to a large extent, as the solution coverage of 91.7 % (see Fig. 1) demonstrates.

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