

An Examination of Barriers to Business Model Innovation

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Abstract - Business models (BM) are the logic of a firm on how to create, deliver and capture value. Business model innovation (BMI) is essential to organisations for keeping competitive advantage. However, the existence of barriers to BMI can impact the success of a corporate strategic alignment. Previous research has examined the internal barriers to business model innovation, however there is a lack of research on the potential external barriers that could potentially inhibit business model innovation. Drawn from an in-depth case study in a German medium size engineering company in the equestrian sports industry, we explore both internal and external barriers to business model innovation. BMI is defined as any change in one or more of the nine building blocks of the Business Model Canvas; customer segment, value propositions, channels, customer relation, revenue streams, key resources, key activities, key partners, cost structure (Osterwalder et al, 2010). Our results show that barriers to business model innovation can be overcome by the deployment of organisational learning mechanisms and the development of an open network capability.

Keywords - Business Model Innovation; Barriers to Business Model Innovation; Corporate Strategy

I. INTRODUCTION

Business Models (BM) are seen as the logic of a firm on how to create, deliver and capture value (Teece, 2010). They create a systematic perspective on an organisation and form a new unit of analysis (Zott, Amit and Massa, 2011). There is a consensus in the literature that business models and its innovation represent a strong source of competitive advantage (Christensen 2001, Markides and Charitou 2004). Although business model innovation (BMI) has positive effect on firm's performance, its implementation remains challenging.

Existing assets (Chesbrough 2010, Kim and Min 2015), managerial choice (Chesbrough 2010, Kim and Min 2015), the adoption of a dominant logic (Massa and Tucci, 2013), and corporate identity (Bouchikhi and Kimberly, 2003) are amongst the barriers to BMI. These barriers that have been so far described in the literature are related to internal barriers within the firms, and we have little knowledge about potential external barriers that can impair the capability of firms to innovate their business models. Few researchers have mentioned the possibility of external influences (Johnson, Christensen, and Kagermann, 2008, p.52); however, these

external barriers have not been explored in-depth. In this paper, we set out to explore the presence of both internal and external barriers to BMI. We come forward with a set of measures that firms could apply to overcome these barriers. The focus lies on incumbent firms, i.e. existing companies and the way they reconfigure their business models, as opposed to the dynamics of the business models of start-up ventures. In this sense, when mentioning "new" or "old" business models or business model innovation, the meaning relates always to new or old features of the existing business model of the company.

A case study in a medium size engineering company in the equestrian sport industry will be utilised as data source. The research applies an explorative and qualitative research strategy since research on barriers to business model innovation is at an early stage. Interviews and observations underline the interpretive position of the research. The study is based on a theoretical lens of dynamic capabilities and the aim is to advance our understanding of both internal and external barriers to business model innovation. First, we will review the literature related to business models and business model innovation. Second, the research method will be outlined and it will be followed by the findings of the case study. Finally, we will discuss our findings in light of previous studies and describe the main contributions of the study.

II. LITERATURE REVIEW

First, definitions of business models vary and are often affected by the author's personal research area or preference. Teece (2010) describes business models as the logic of a firm on how to create, deliver and capture value. Casadesus-Masanell and Ricart (2010) explain business models as a mirror of an organisation strategy, whereas Zott and Amit (2010) see business models as interdependent boundary spanning activities which change the content, structure and governance of an organisations activity system. Zott, Amit and Massa (2011) focus on value creation and capturing: they categorise business models as a new unit of analysis which offers a systematic perspective on a firm's DNA.

A. Business Model

Drawn from an in-depth literature review, Zott, Amit and Massa (2011) define the origin and definition of business

models. The authors suggest three different concepts and definitions for future investigations; e-business-model archetypes including information technology, business models as activity systems, and business models as cost and revenue architectures. It is important to see business models as a new form of analysis which offers a holistic perspective on a company's DNA and which enables boundary spanning activities to foster value creation and value capturing. Business models focus on value creation in a single organisation; however, its boundaries extend the boundaries of the focal firm by taking important stakeholders into consideration. They either exist as a single source or complement each other (Zott, Amit, Massa 2011). Firms can innovate their business models in multiple ways as for example by a) adding new activities, b) linking activities in novel ways and c) changing which parties perform an activity in the value chain (Amit and Zott, 2012). Collaborations and partnerships are at the centre of the business model concept (Magretta, 2002).

Taking a new perspective, Massa and Tucci (2013) consider business models as major source of innovation for the firms. Business models offer innovative companies and entrepreneurs the possibility to build connections between new technologies and novel ways of reaching customers. Business model innovation can be a source of radical change in an industry, e.g. Ryanair, Uber or Airbnb. The Business model innovation of those organisations has created a great disruption in their industries.

B. Business Model Innovation

The concept of business model innovation arose in the 1990s, parallel to the fast growth of the internet (Massa and Tucci, 2013). The development of the importance of business models and its innovation was especially fostered by the increasing professionalism of information and communication processing. Organisations experimented with these technologies and created a new industry around the field of how to apply them. Massa and Tucci (2013) distinguish business model innovation between business model design and business model reconfiguration. Business model design represents the creation and validation of BMs for new ventures, whereas business model reconfiguration stands for the change of existing business models. Both types can result in business model innovation; however, to do so they need to contain some kind of novelty.

Giesen, Berman and Blitz (2007) classify business model innovation for incumbent firms into three different groups. The first one, industry model innovation, concentrates on the value chain of the industry. It changes existing industries and discovers or creates new ones. Revenue model innovation, the second kind of BMI, concentrates on the revenue streams of an organisation. Herewith new price models or changes of the value mix are the focus of innovations. The third one, enterprise model innovation, concentrates on the role of the firm in the value chain. All stakeholders, such as suppliers and networks, can be influenced by it and repositioned around the focal company.

Kim and Min (2015) analyse the right timing of adding a new business model. Firm resources and managerial choice are

inseparably intertwined and represent the performance potential of a firm. Complementary assets of existing and new business models enhance a company's potential to perform well. However, it is the "managerial choice" which is responsible for recognising these assets and for taking advantage of them. The research highlights the importance of balancing separation and integration of new business models. Business model innovation can enhance value creation, but organisations need to be aware of the complementarity or substitutability between new and existing features of business models (Markides and Oyon 2010, Amit and Zott 2012, Casadesus-Masanell and Tarzijan 2012, Gilbert et al. 2012, Desyllas and Sako 2013).

Business model innovation requires granular knowledge about stakeholders and the market in which the organisation operates (Teece, 2007). Creativity and inside information play an important role for managers to understand a business model and subsequently to develop new ones. Doz and Konsonen (2010) point out the importance of managerial responsibility and capability to create an agile organisation to support the ability of changing BMs. Adjustments of the business models are often necessary to adapt to environmental changes and to keep competitiveness. For achieving agility the authors propose to foster strategic sensitivity, leadership unity and resource flexibility.

C. Barriers & Solutions

Damanpour (1991) analyse the relationships between organisational innovation and certain determinants. He found formalisation, centralisation and vertical differentiation as negative factors to Innovation. We argue that these negative determinants to organisational change are equally relevant to business model innovation. Low formalisation offers openness and therewith fosters innovative ideas to flourish. Vertical differentiation or a large hierarchical structure damages communication and the flow of information necessary for innovative ideas. Centralisation of decision-making authority will eventually harm new solutions, as successful innovation requires authority and power where it evolves.

Business model literature narrows the notion of barriers to business model innovation further down. Chesbrough's (2010) defines two main barriers to BMI: existing assets and business models, and the managerial understanding of barriers. Business model innovation will usually require a certain transition time whereas two business models (or new and old features of a BM) are present at the same time in the organisation, and may potentially compete for resources. Chesbrough suggests a controlled process of experimentation and effectuation as well as professional leadership to overcome those barriers.

Business model innovation for existing organisations is always influenced by existing structures of the company (Massa and Tucci, 2013). Incumbent firms usually establish a dominant logic of how things work. This logic might be counterproductive for business model innovation as it prevents new perspectives and a creative "out of the box" thinking style. The dominant logic functions as a subconscious filtering process erasing everything that does not fit in the current business model. This phenomenon presents path dependency of

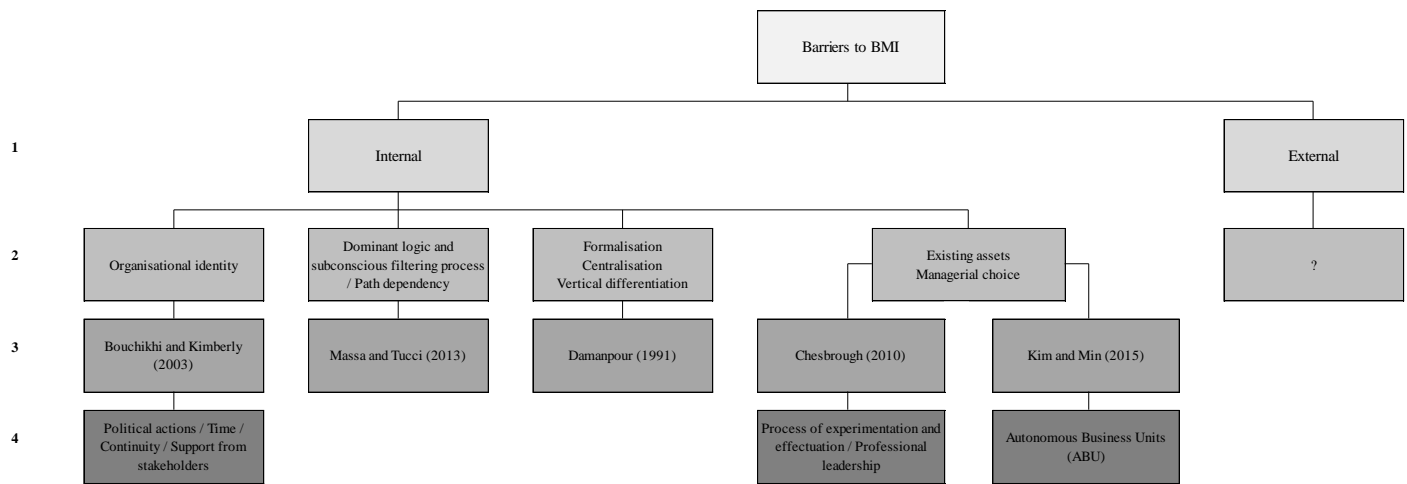


Fig. 1. Visualisation of core literature

incumbent firms as a further barrier to business model innovation (Prahalad and Bettis 1986, Chesbrough 2003).

Chesbrough (2010) argues that a strong commitment to experimentation is necessary to realise the potential of new business models. He suggests two experimentation tools to visualise and understand business models; the “business model canvas” (Osterwalder et al, 2010) and the “IBM component business modelling tool”. Incumbent firms should elect a change manager and must find a solution to welcome business model innovations on one hand, but still maintain present business models on the other hand too.

The danger of having two business models in the same organisation at the same time lies in their often cannibalising behaviour towards sales, customers, distribution networks and the quality of service (Markides and Charitou, 2004). Kim and Min (2015) contribute to the research on barriers to BMI by suggesting autonomous business units (ABU) as a solution approach to mitigate the risk of negative influences from conflicting assets. The separation of conflicting assets through ABUs helps to legitimise new models among sceptical employees working with those assets (Chesbrough and Rosenbloom, 2002).

Beyond all classical barriers to business model innovation, a primary constraint on a company’s adaptive capacity to business model innovation is its fundamental identity (Bouchikhi and Kimberly, 2003). Ambiguous identities of organisations will result in internal conflicts and barriers to stable relationships with partners. A strong identity eventually brings competitive advantage. If an organisation’s identity does not suit its core competences, it is the manager’s responsibility to make adjustments. However, identity is an inert asset of organisations. Radical business model changes would most probably distract employees which might have aligned much of their personal identity with the organisational identity (Ashforth and Mael, 1989). Effective political skills, time, attention, continuity and support from stakeholders are key resources required to change the organisational identity successfully.

The business model represents a source of competitive advantage (Christensen 2001, Markides and Charitou 2004). However, managers’ cognition to understand when a new BM is needed is rare (Johnson, 2010). Managers in incumbent firms often face cognitive challenges to handle the transitional period during which they have to manage two different business models at the same time (Markides and Charitou 2004, Markides and Oyon 2010).

Fig. 1 presents the main statements of the core literature to this paper. Row 1 separates internal from external barriers. Row 2 presents the barriers, row 3 lists the related authors and row 4 the solution approaches to overcome the barriers. Scholars agree that there are still few gaps regarding barriers to business model innovation of incumbent firms (Damanpour 1991, Bouchikhi and Kimberly 2003, Chesbrough 2010, Massa and Tucci 2013, Kim and Min 2015). However, presumptions about the possibility of external barriers exist (Johnson, Christensen, and Kagermann, 2008, p.52).

The research objective of this study is to analyse barriers to BMI and to find mechanisms to overcome them. We assume that there is a distinction between the attributes and impacts of internal and external barriers to business model innovation. Hence, the two research questions of this study are:

- Q1: What are the internal and external barriers that prevent incumbent firms from innovating their business models?
- Q2: What are the mechanisms that incumbent firms could potentially deploy to overcome the internal and external barriers to business model innovation?

The research is captured through the theoretical lens of dynamic capabilities. The theory of dynamic capabilities is an extension of the resource based view. In contrast with the resource based view, the theory of dynamic capabilities highlights that organisations should acquire resources flexibly and only when needed (Helfat and Peteraf 2003, Winter 2003).

A theoretical lens of dynamic capabilities underlines the heterogeneous and fast moving business model environment of the 21st century.

III. METHODOLOGY

The author's approach is to extend the theory by developing propositions related to the internal and external barriers to business model innovation. The method of theory extension, referring to Zahra and Newey (2009), is utilised and applies theories of absorptive capacity (Cohen and Levinthal, 1990), corporate identity (Bouchikhi and Kimberly, 2003) and social capital (Rost, 2011). The study exploits an explorative and qualitative research strategy since research on barriers to business model innovation is still at an early stage (Silverman, 2009). A single-case study allowed a deep exploration of the phenomenon and utilised the opportunity of first tier research access (Yin, 1994). The paper explores internal and external barriers to business model innovation through an inductive analysis of the qualitative research approach. The aim is to build theory around the notion of external barriers to business model innovation to contribute to a more holistic perspective.

The main philosophical position through the paper is an interpretive one. The importance of an interpretive perspective in this study emerges from the collection of data through interviews and observation. Interviews provide an efficient way to gather rich empirical data and provide an ideal base for abstract research and theory building around new areas. A limitation to interviews is that one needs to be aware of not giving the impression to build theory out of retrospective statements by informants (Eisenhardt and Graebner, 2007). Observations including side-questions have been done to better understand and analyse the focal company and its relationship to stakeholders. Observations reduce bias (Eisenhardt and Graebner, 2007) and support objectivity and a holistic perspective on research (DeWalt and DeWalt, 2010). A limitation of observation lies in the behaviour of the participant acting differently when realising to be observed.

The Business Model Canvas (BMC) (Osterwalder, Pigneur, Clark, 2010) is used as an underpinning framework for the case study. The holistic and on network-partners focussing BMC (Chesbrough, 2010) supported the interviewer to communicate the notion of business models and business model innovation and enabled him, as well as the interviewee, to detect barriers to business model innovation.

The case study was conducted at a German SME (anonymised: EQUI) in the equestrian sport industry. The equestrian sport industry is rather conservative and the customer segment considered being a niche market. 2016 EQUI employed more than 115 professionals and had a turnover of around 16 million euros. The company's production capacity includes 60 employees at two sites. The distribution network is globally set which gives the company a great number of references in Germany and abroad. The export business in 2016 made around 60% of the overall turnover.

The interview questions covered three major topics with several minor questions related to them. The first question related to the BMC and captured the present DNA of the company. It gave a holistic and diverse perspective on the nine

subjects thematised in the BMC. The second question concentrated on previous innovations related to the BMC. Each subject of the BMC was thought through to find previous related innovations. The third question focussed on perceived barriers to the innovations of question two. It also included topics around solution approaches to overcome barriers. (Interview questions at appendix G)

Each interview took between 45 and 90 minutes depending on the extent of the interviewees answer to each question. Eight different interviews were conducted from a number of heterogeneous long term employees, including those from the senior management level, and summarised to a clear and structured overview following a timeline from 1988 to 2015. Following positions have been part of the data collection:

- (1) Founder & senior manager of product development
- (2) Senior manager of marketing & sales
- (3) Former senior manager of sales
- (4) Head of purchasing
- (5) Head of finance & human resources
- (6) Head of executive production, Germany
- (7) Head of capacity planning, national & intern
- (8) Executive of customer relation and marketing

Observation of the company and its industry has been done at the "EQUITANA" (www.equitana.com), globally the leading exhibition for equestrian sport. The EQUITANA takes place every two years in Essen, Germany.

To ensure reliability and validity of the collected data, all interviews were structured into a detailed answer table. The table was logically structured by placing evidence in different categories, creating charts and sorting results in chronological orders. The answers tables were translated from German to English after the interviews were conducted (appendix C&D). The tables are tightly related to the research questions and include a detailed logic. Hence they are valid as the coding of the data.

The core principles of ethics in qualitative studies are based on beneficence, respect and justice (Sieber, 1992, p. 18). This research ensured that no harm, risk or wrong was committed to the participants. Anonymity and privacy were ensured by not naming the organisation and interviewees.

IV. RESULTS

During the data collection process, we have captured a complete view on the company's business model as well as on previous innovations, barriers and solutions. The results are structured according to the themes of the interview questions starting with findings related to the business model canvas and continuing with an analysis of previous business model innovations as well as perceived barriers to those innovations. Solution approaches to overcome barriers will be analysed at the end.

A. Business Model

The BMC presents a structured visualisation of the current business model of EQUI. By organising the subjects customer segment, value propositions, channels, customer relation, revenue streams, key resources, key activities, key partners and cost structure into nine building blocks, it allows a holistic perspective on the most important features and relations of the companies' DNA. All interview answers were summarised in one BMC. This summary indicates the value propositions of the organisation in three categories: quality of the product, consultation and brand reputation, so the majority of interviewees. The quality of the product presents itself in advanced technical solutions, safety, individuality and design. Consultation stands for the quality of organising project processes as well as for the detailed knowledge about rules and regulations of equestrian sport projects. Customers receive support in planning detailed project solutions for either building their own revenue streams or for just fulfilling a life dream. Brand reputation communicates long history, experience, trust and prestige.

The customer segment can be separated in three different categories as well: exclusive hobby customers, standard hobby customers and customers who purchase products as an investment good. The senior manager of marketing & sales stats:

"Customers from the exclusive customer segment require highest standards and individuality as the project often stands as a status symbol for them. Standard customers focus on technical functions and also on a great design. Purchases as an investment good are B2B purchases. Technical solutions and efficiency as well as an appealing design are wanted to build new revenue streams."

The customer segments are considered as a niche market and are often highly diversified. Generally, customers are land owners with capital and a sense for quality and design.

The data of the further seven subjects of the BMC (channels, customer relation, key resources, key activities, key partners, cost structure and revenue streams) are organised and visualised in appendix A.

B. Business Model Innovation

The previous section (A) was intentionally descriptive to set the right background of the findings. The nine subjects of the BMC supported the interviewees and the researcher to capture and understand the business model of the focal company in a clear light. The second interview question focussed on previous innovations related to each of these nine subjects. The interviewees have been asked about major innovations in the last thirty years, the date they were developed, their success rate, enablers and motivators, the degree of the innovation and the relation of the innovation with one or more of the subjects of the BMC. The results of all interviews were implemented in an Excel file and created a complete summary of all business model innovations from the last thirty years. In total, 37 different innovations were detected and structured in a logical order of a vertical timeline, separated by their degree (incremental / radical) (appendix C). The information about the success and the degree of innovations was needed to build relations to barriers of BMI

which are thematised in interview question three (see relation in table 1). The question about the success was answered with yes or no, whereas the question about the degree of an innovation was defined as either incremental, which appears only new to the focal firm, or radical, which appears new to the whole industry of the firm (Henderson and Clark, 1990). The enablers and motivators of business model innovations allow a deeper understanding of each innovation and might explain strategic corporate thoughts behind changes. The relation between business model innovations and the subjects of the business model canvas indicates that a different quantity of business model innovations occur in different building blocks of the business model canvas. It shows a tendency towards one or the other segments. In the case of EQUI many business model innovations appeared in the segments channels, customer segment and key resources (appendix B). The founder & senior manager stats:

"We continuously tempt to manage the required resources for our products as efficient and sustainable as possible and tried to place products through novel channels as well as to expand our customer segments."

The results of interview question two are visualised in a logical table in appendix C.

C. Barriers to Business Model Innovation

The third interview question referred to perceived barriers to the business model innovations detected in interview question two. Each of the 37 innovations has been questioned about difficulties in their realisation process. The results and all specific details were structured in the same Excel file as the innovations in order to highlight their connection to each other (appendix D). Whereas the first and second interview question led indirectly to the notion of barriers to BMI, the third interview question directly addressed the research questions of this study. The interview results show that out of 37 innovations, 32 had perceived barriers. Out of these 32 barriers, 19 barriers were due to internal issues, 2 were due to external influences and 11 were combinations of internal and external barriers.

Relating the detected barriers to the subjects of the business model canvas indicates that a different quantity of barriers occur in different building blocks of the business model canvas. It shows a tendency towards one or the other segments. In the case of EQUI many internal barriers appeared in the segments value propositions, channels and key resources. The most external barriers appeared in the segments key partners, key resources, channels and cost structure. The most combinations of internal and external barriers appeared in the segments channels, customer segment and cost structure (appendix E).

As a business model innovation often struggles under the influence of more than only one barrier (which explains the large number of combinations between internal and external barriers) and due to the fact that similar barriers often occur in more than one innovation, we "singulated", abstracted and deleted equivalent barriers to get a clear and structured overview on existing barriers to BMI from the case study (table 1). In total, 26 different barriers were found and sorted by their

TABLE 1: BARRIERS TO BUSINESS MODEL INNOVATION

Barriers to Innovation	Origin	Relation to degree of innovation	Relation to success of innovation
Trust	Internal	Incremental	Yes
Lack of courage	Internal	Incremental	Yes
Production capacity	Internal	Incremental	Yes
Lack of knowledge	Internal	Radical	Yes
Lack of networks	Internal	Incremental	Yes
Costs of individuality	Internal	Incremental	Yes
Capacity of employees	Internal	Incremental	Yes
Manufacturability of designs	Internal	Incremental	No
Negative novelty effect	Internal	Incremental	Yes
Administration effort	Internal	Incremental	Yes
Machining failure	Internal	Incremental	Yes
Language	External	Incremental	Yes
International competitors	External	Incremental	Yes
Culture	External	Incremental	Yes
Quality of material	External	Radical	No
Finding the right partner	External	Incremental	Yes
Quality requirements	External	Incremental	Yes
Follower disadvantages	External	Incremental	Yes
Legal rights	External	Incremental	Yes
Customers' adoption	External	Radical	No
Uncertainty	Internal / External	Radical	Yes
Costs	Internal / External	Radical	No
Time	Internal / External	Incremental	Yes
Lack of resources	Internal / External	Radical	No
Safety issues	Internal / External	Incremental	No
Labour acquisition	Internal / External	Incremental	Yes

origin. Out of these barriers, 42% were internal barriers, 35% were external barriers and 23% were barriers which could be either internal or external depending on the specific case.

Based on table 1, internal barriers to business model innovation are, for instance, trust, lack of knowledge and negative novelty effects. These influencers reflect parts of the corporate culture and/or abilities and affected the development of innovations in the focal firm of the case study. The barriers occurred for both radical and incremental innovations and resulted in succeeded as well as not succeeded business model innovations. Thought provoking was the detection of influencers like culture, legal rights, quality requirements and customer adoption. These facts were truly barriers to BMI and influenced the organisation in several occasions. As the head of purchasing mentions:

“When we began to purchase in China, for example for implementing bamboo wood to the industry, we experienced cultural misunderstandings and often difficulties around quality requirements.”

A similar statement was given by the former senior manager of sales, who remembered the introduction of an online distribution platform:

“The introduction of our online distribution platform hid more legal and IT requirements as we had thought of. It had cost us time and external consultation to finally finish this project.”

These external barriers have in common a higher level of uncertainty, which makes the preparation to avoid them more complex. They are distinct from internal barriers in terms of the degree and success rate of affected innovations.

The relation between barriers' origin and the success rate of the linked innovation was calculated by considering all barriers of table 1 which stand in relation with not succeeded

innovations of appendix D. The result was that business model innovations which did not succeed are more often affected by external barriers than by internal barriers. In numbers, 9.10% of the not succeeded innovations are affected by internal barriers, 22.20% of the not succeeded innovations are affected by a mixture of internal and external barriers to innovations. Based on these facts one can see that influences from external barriers affect a successful implementation of BMI more strongly than internal barriers do.

Innovations of appendix C could also be assigned to their degree of innovation, either incremental or radical. This degree was again compared to the origin of the related barriers of table 1. The results show that radical innovations are more often affected by external than by internal barriers. Coincidentally, the same numbers appear as for the relation between the success rates of business model innovation and the origin of their related barriers. 9.10% of internal barriers, 22.20% of external barriers and 50% of a combination between internal and external barriers to BMI affect radical innovations.

The analysis of the results in appendix C&D shows that customers' adoption and the acquisition of new partners appear more often in the category of external impacts to business model innovation for the focal organisation. However, a further relation between these barriers and the degree or the success of the related innovations could not be made, as table 1 presents that incremental as well as radical, and succeeded as well as not succeeded innovations are affected by these common external barriers.

D. Solution Approaches to Barriers

Every succeeded innovation which experienced barriers during its realisation must also have had a solution approach to overcome the barriers. The third interview question also enabled to build relations between different kinds of barriers and certain solution approaches. The responses indicate the approaches that were most often applied (table 2). Specifically four approaches were applied recognizable often; organisational learning (e.g. gaining an advantage on the learning curve), selection of external partners (e.g. joint ventures), time, and an open network attitude. The organisation used one or more of these four solution approaches for most of their barriers to eventually implement BMIs successfully. By analysing solution approaches of barriers to radical innovations, no specific distinction was found in comparison to solution approaches of barriers to incremental innovations. However, the solution approaches likely present parts of the organisational identity.

The results of the data collection presented a precise look into the business model of the focal company and offered a detailed and holistic perspective on different possibilities of doing business model innovation in one or more of the segments of the BMC. The complete list of innovations and the insides on barriers gave information about their relation with each other as well as with the entities “origin, success and degree”. Observations of the company and the industry supported the researcher to better understand the corporate culture and the relation with partners of the industry. It further

TABLE 2: SOLUTION APPROACHES TO BARRIERS OF BMI

Barriers to Innovation	Origin	Solutions to overcome barriers																
		Time and experiences	External partners	Research	Building networks	Acquisition of employees	Stable processes	Corporate learning	Change of suppliers	Readjusting prices	Loans	Reclamations	Managerial choice	Moving to a large production	Employing local people			
Trust	Internal	x				x				x								
Lack of courage	Internal	x								x							x	
Production capacity	Internal		x				x										x	
Lack of knowledge	Internal	x	x	x	x	x	x			x								
Lack of networks	Internal					x	x			x								
Costs of individuality	Internal								x	x			x					
Capacity of employees	Internal		x				x											
Manufacturability of designs	Internal		x	x						x								
Negative novelty effect	Internal	x					x											
Administration effort	Internal						x	x	x									
Machining failure	Internal		x						x							x		
Language	External		x			x												x
International competitors	External		x			x												
Culture	External	x								x								
Quality of material	External				x				x	x	x					x		
Finding the right partner	External	x				x				x	x							
Quality requirements	External								x	x	x							
Follower disadvantages	External									x			x					
Legal rights	External		x	x						x								
Customers' adoption	External	x																
Uncertainty	Internal / External	x				x												
Costs	Internal / External											x	x				x	
Time	Internal / External		x				x					x						
Lack of resources	Internal / External		x					x			x							
Safety issues	Internal / External		x						x	x								
Labour acquisition	Internal / External		x			x												

8	12	4	8	7	7	14	4	4	1	2	2	1	1
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expanded the holistic perspective on the study and contributed to its objectivity. The results proved the existence of external barriers to business model innovation.

V. DISCUSSION

To analyse and discuss the results in the light of the literature, barriers are separated according to their origin (internal or external). Internal barriers are categorised into four different groups, and each group is discussed in light of the theories that we have presented in the literature review section of the paper. The emerging external barriers from our case study are then discussed. Appendix F supports the understanding of the discussion section.

A. Internal Barriers to Business Model Innovation

Trust, lack of courage, lack of knowledge, and negative attitude towards novelty are internal barriers which can be connected to Bouchikhi and Kimberly’s (2003) notion of identity. The authors point out that, beyond all classical barriers to BMI, the fundamental identity of an organisation is a primary constraint on a company’s adaptive capacity to business model innovation. The detected barriers present the multifaceted structure of how identity can have an impact on an organisation. It reflects the slightly conservative structure of

the equestrian sport industry. Negative attitude towards the adoption of novelty gives also a hint towards the Not Invented Here syndrome of Katz and Allen (1982).

Individuality in consultation and manufacturing is part of the value proposition of EQUI, but at the same time, it is also one of the most costly internal barriers of the company. Customers have acknowledged the value that the firm provides by customising the products according to their needs. This is the perceived identity by the customers. However, this perception inhibits the firm from innovating beyond the requirements of the customers. This perceived identity of the firm by customers contains a form of path dependency (Massa and Tucci, 2013) which in turn inhibits the firm to innovate the BM. This is because path dependency increases the risks of the firm to fall into the familiarity trap (Ahuja and Morris Lampert, 2001). The process of sense making to change the perception of identity would take long. However, the trigger to do so has to come from the company.

Large administration effort through inefficiency can harm the progression of BMIs and appear as internal barriers. It refers to organisational change literature where Damanpour (1991) sees formalisation, centralisation and vertical differentiation as negative impacts to organisational change.

The internal barriers “production and employee capacity, manufacturability of designs, lack of networks and machining failure” relate to one of the strongest barriers from the BMI

literature. Both Chesbrough (2010) as well as Kim and Min (2015) saw existing assets as the main obstacles to business model innovation. Established organisations usually have a core business model and set assets for that model. The integration of a new business model might require other or additional assets which would then conflict with the existing ones. A logical approach to face those issues in future is the implementation of flexible corporate structures i.e. to raise dynamic capabilities.

Failing to absorb information from key networks is related to the theory of absorptive capacity (Cohen and Levinthal, 1990). The theory refers to the ability of organisations to absorb external knowledge. Organisations, tempting to innovate their business model, need to enhance their capability of recognising external knowledge by conducting own internal research first.

B. External Barriers to business model innovation

External barriers represent the second group of detected barriers to business model innovation. They are grouped together and sorted into five different categories (appendix F). The first category contains language and cultural issues. These two matters are quite stereotypical external barriers as perhaps most of western companies experienced difficulties by establishing a subsidiary in foreign countries like China, India, Brazil or Russia. Unrelated to the preparation effort, a certain amount of uncertainty will always remain. The theory relates to the core of the interpretive philosophical position which states that an objective reality which can be discovered and replicated does not exist. Cultural barriers are in one way or another always related to a sum of humans' individual subjective meanings, influenced and expressed in relation to their environment (Orlikowski and Baroudi 1991, Walsham's 1993). It is assumed that organisations planning to interact with unfamiliar cultures always meet barriers from the social construction of the local human actors. However, the globalised economy already developed proven processes to lower the impact of these challenges. Linguistic and cultural educations as well as international relations studies are just a few of them.

Different and changing legal rights form the second category of external barriers. A national economy must follow the laws to which it belongs, even if they appear as barriers to certain BMIs. Legal borders can create a disadvantage to international competitors in enhancing global competitive advantage. Common impacts are the limitation of working hours, minimum wages or safety regulations.

The third category of external barriers highlights specific quality requirements either from the focal company towards suppliers or from customers towards the focal company. Even if quality requirements can be set very clearly in written form, there might remain different conceptions of the quality of the final product or service on the day of delivery. Quality thereby does not only include functionality but also all kinds of design issues. It can appear as a barrier to BMI, for example, due to commissioned logistic companies which eventually deliver always late, or due to requests of not available product shapes.

Category four contains the selection of right partners and relates to category three. Successful executions of certain business model innovations might require specific suppliers of goods or services, or even well networked dealers in unfamiliar regions. As business models are increasingly built on collaborations with external partners, the acquisition of these partners might appear as a barriers to certain business model innovations.

Category five focuses on disadvantages arising from customers and competitors. Customers' adaptations of new business model innovations or general follower disadvantages are examples of barriers of this group. No matter how well a BMI appears to the inventing company, they are not successful unless potential customers accept the novel ideas and purchase. The organisational competitive advantage might also not grow as strong as forecasted through a business model innovation if a competitor's business model is already established as the dominant design of the focal market. These barriers to BMI appear fairly simple; however, they might have radical negative consequences on organisations.

C. Solution Approaches to Barriers of BMI

The company of the case study applied a variety of different solutions approaches to overcome the barriers to BMI they had to face. Four approaches were applied recognizable often; corporate learning (e.g. gaining an advantage on the learning curve), careful selection of external partners (e.g. joint ventures), time to experiment with ways to innovate the business model, and the development of new networks (e.g. attending regularly international exhibition organisation). All approaches appeared in both internal and external barriers (table 2). Corporate learning in some sense includes already time and refers to the theory of organisational learning (March, 1991). Selection of external partners and the development n of new networks can be grouped together into networks and partners. Thus, there are two strong solution approaches emerging from the case study.

The business model literature detected experimentation (Chesbrough, 2010), professional leadership (Chesbrough, 2010) and autonomous business units (Kim and Min, 2015) as solution approaches to barriers of business model innovation. Additionally, identity issues (Bouchikhi and Kimberly, 2003) can be faced through political skills, time, continuity and support from stakeholders. However, instead of changing the corporate identity towards one or the other business model, organisations rather lift their adoptive flexibility to change in general. A positive attitude towards change generally creates flexibility and a climate that supports innovation. Right technical resources in combination with an open and flexible corporate culture will eventually raise the potential of successful innovations (Hage, 1980).

Organisational learning has been well researched in the past. The theory also functions as a general approach to overcome barriers to business model innovation. William Edwards Deming (1986) developed a "hands on" theory around a structured continuous improvement process for organisations. He named this process PDCA cycle which stands for "plan, do, check and act". The theory is best

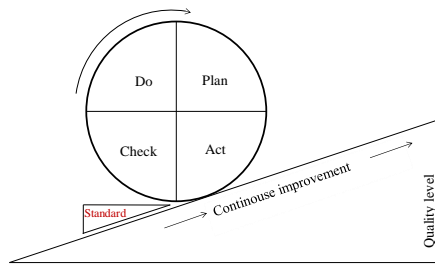


Fig. 2. PDCA cycle (Deming, 1986)

explained by visualising it (fig. 2). It shows a quartered wheel with the four subjects named before, rolling up the hill of quality. The wheel is stopped from rolling backwards by a wedge of corporate standards. The theory shows improvements in a systematic and continuous process, repeating over and over again. Thereby, although organisational learning is fairly philosophical as a solution approach to BMI, Deming explained specifically how well structured a learning process can be in organisations (Brunner, 2008, p.p. 6).

Using networks and partnerships to succeed with innovations is widely acknowledged in many industries. An open innovation strategy is not only supporting in terms of generating innovations, but also in terms of overcoming barriers. Right networks can eventually decide about success or failure of business model innovations. EQUI suffered, for example, under difficulties to enter certain foreign markets and to acquire specific human resources. Both barriers were solved either through external partners (e.g. construction of joint ventures) or the participation of supportive networks (e.g. network of international exhibition organisation).

Using networks and partners is a question of how to handle social capital. After Coleman, who supported network closure, and Burt, who supported structural holes, Katja Rost (2010) suggests a combination of both theories (meaning strong and weak ties) as the ultimate solution approach which fosters the development of innovation through networks best. To benefit effectively from networks, organisations must also be capable of absorbing knowledge. Cohen and Levinthal's (1990) theory of absorptive capacity describes the ability of organisations to absorb external knowledge. Companies are required to conduct own R&D in order to be able to recognise supportive knowledge of external partners.

VI. LIMITATIONS & RESEARCH SUGGESTION

This study is a qualitative inductive research with a comparable small number of interviews from a niche market. The findings need to be proven in larger studies to raise the objectivity of the research. The phenomenon of the existence of external barriers to BMI needs to be tested for different industries and organisations.

By conducting the case study we realised that business models of organisations like UBER or Air-BnB are also affected to a large extent by external barriers. The law of transportation and the law of accommodation clearly forbid the execution of their business models in several countries.

However, both organisations placed their radical innovation straight forward and became quickly the dominant player in their industries. We now can observe that previous strong external barriers (which consciously have been disregarded) are removed or softened to give space for the BMI of these organisations. The interesting effect of how dominance can repeal external barriers to radical business model innovation can be material for further investigations.

VII. CONCLUSION

The research analysed the notion of barriers to business model innovation in incumbent firms. It detected several barriers and solution approaches. An important aspect of the findings is the recognition that external barriers to business model innovation exist in incumbent firms. Hence the author distinguishes between internal and external barriers to business model innovation and suggests this distinction for future research on BMI too, in order to define the topic more precisely. This study was conducted to inspire academics to further define the notion on barriers to business model innovation. Additionally, it gives awareness to practitioners to consciously consider also external barriers when doing business model reconfiguration. A corporate culture of change and open learning processes is recommended as a breeding ground for business model innovation.

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APPENDIX

Appendix A: Business model canvas of EQUI

Appendix B: Innovation division of business model canvas

Appendix C: Business model innovations of EQUI

Appendix D: Barriers and solution approaches to business model innovations of EQUI

Appendix E: Barriers division of business model canvas

Appendix F: Research contribution

Appendix G: Interview questions

Appendix A: Business model canvas of EQUI

Key Partners	Key Activities	Value Proposition	Customer Relation	Customer Segment
<p>Production in abroad</p> <p>Mounting companies</p> <p>Logistic</p> <p>Galvaniser</p> <p>Powder coater</p> <p>Bamboo wood supplier</p> <p>Steel suppliers</p> <p>Stainless steel supplier</p> <p>International traders</p> <p>Laser companies</p> <p>Electro polishing companies</p> <p>Screws supplier</p> <p>Paint supplier</p> <p>Glass bead blasting companies</p> <p>Steel pickling companies</p> <p>Labeler for jumps</p> <p>Service companies for welding equipment etc.</p> <p>Other stakeholder of the industry (in general keeping good relationships to other companies in the industry will eventually foster a positive recommendation and enables an easier access to information about new projects)</p> <p>General contractors for equestrian sport plants</p> <p>Tax consultant</p> <p>IT consultancy</p> <p>External marketing consultancy for print media</p> <p>Coach for sales employees</p> <p>Management consultancy</p> <p>Banks</p>	<p>Acquisition of high potential new employees</p> <p>Technical trainings for production employees</p> <p>Sales training</p> <p>Increasing the personal interest of employees to search for new potential designs and technical solutions for products and production</p> <p>Encouraging employees to constantly have their eyes open for potential improvements</p> <p>Growing a culture of failure tolerance to generate a larger quantity of new ideas</p> <p>Sells employees must build a good reputation for themselves and the brand</p> <p>Sells employees must present a professional attitude to their profession</p> <p>Developing a corporate attitude of learning</p> <p>Visiting the customer construction site after a project is completed (quality control)</p> <p>Knowledge about, recognition of, and special treatment of professional riders of the industry</p> <p>Regular quality meetings</p> <p>Managerial quality control</p> <p>Acquisition of best suppliers</p> <p>Regular communication with galvanising and powder coating firms to ensure quality</p> <p>Purchase department is highly responsible for quality of suppliers</p> <p>Managing external service companies to avoid equipment failure</p> <p>Direct contact to important steel suppliers</p> <p>Implementing brand symbol on products</p> <p>Creative product development structures</p> <p>Continuous production and process improvement</p> <p>Personal presence at important exhibitions</p> <p>Participating exhibitions in a proper size and quality to raise the brand image</p> <p>Regular screenings and analysis of the industry, especially competitors' products</p> <p>Market research on customers' preferences about design and technique</p> <p>Long distance view towards the future</p> <p>Professional reclamation management</p> <p>Fulfilling customers' individual wishes without losing profit</p>	<p><i>Consultation</i></p> <p>Quality of organising the project process</p> <p>Showrooms with product examples at company</p> <p>Time together with the customer</p> <p>Support in project process planning and project fulfillment</p> <p>Knowledge about rules and regulations of equestrian sport projects</p> <p>Detailed creation of project solutions</p> <p>Helping the customer to reach his self-realisation</p> <p>Helping the customer to build his own revenue streams</p> <p>Consultation about whole project</p> <p>Knowledge about safety and regulation requirements</p> <p><i>Quality of the product</i></p> <p>Exclusivity</p> <p>Diversification</p> <p>Broad product variety</p> <p>Design</p> <p>Technical solutions</p> <p>Individuality of products</p> <p>Safety</p> <p><i>Brand reputation</i></p> <p>Long history and experience</p> <p>Trust</p> <p>Prestige</p>	<p>High qualitative consultation for whole project</p> <p>Speaking the same mother tongue</p> <p>Professional and helpful argumentation</p> <p>Personal consultancy with the same sells man over the whole project</p> <p>Firm contract must come from customer, not from the company</p> <p>Not being obtrusive</p> <p>Fair offers</p> <p>Holding promises from sales negotiation</p> <p>Delivering on time</p> <p>Letting the customer participate the progress of his order by sending him pictures of production stages</p> <p>Special treatment of customer unrelated to the quantity of the order as the investment is often a once in a lifetime project</p> <p>Customer wants to feel special</p> <p>High quality references</p> <p>Building trust between customer and company</p> <p>Offering to view projects from previous customers to deliver a feeling for possibilities and quality</p> <p>Mounting the products without complications</p> <p>Fast and to the point completion of reclamations</p> <p>Sales employee should visit customer's construction site before and after a project to measure his satisfaction</p> <p>After sales care</p> <p>Customers' details shall be remembered for the case that a customer places another order in future</p> <p>Informing previous customers about major technical product improvements</p>	<p><i>Exclusive hobby</i></p> <p>Exclusive individuals with capital</p> <p>Foreign customers</p> <p>Capital strong investors from Germany and the EU</p> <p>Very capital rich investors from abroad which order highest quality in large quantities</p> <p>Product is often a fun object to a customer with strong capital</p> <p>Investing to fulfil a dream, to reach self-realisation</p> <p>Looking for individuality</p> <p>Do not want to buy standard</p> <p>The stable is often a status symbol for the owner</p> <p><i>Investment good</i></p> <p>Associations</p> <p>General contractors for equestrian sport plants</p> <p>Equestrian sport facility owner from all disciplines of the industry</p> <p>Sponsors</p> <p>Organisations as an investment good</p> <p>Horse breeder</p> <p>Stable on stable</p> <p>Large equestrian industries / properties</p> <p>Race stables in larger segment</p> <p>Professional invest as an investment good to build revenue streams</p> <p><i>Standard hobby</i></p> <p>Higher middle class investing small orders to fulfil the hobby of the family</p> <p>Private standard customer who builds project by himself</p> <p>Hobby rider with sense for design and function</p> <p><i>General</i></p> <p>Niche market</p> <p>Market is much diversified</p> <p>Ground owner</p> <p>People with sense for quality</p> <p>Customers with high quality standards and capital to invest</p>
	<p>Key Resources</p> <p>High quality web page</p> <p>High quality sales employees</p> <p>High quality technicians</p> <p>High quality employees</p> <p>Strong back office for sales people</p> <p>Access to previous projects to show customers around</p> <p>Showrooms with product examples at company</p> <p>Creativity and taste for design to invent new technical solutions and products</p> <p>Full commitment of international traders to the company and products</p> <p>High quality mounting team</p> <p>Effective production</p> <p>Laser parts for highest quality</p> <p>High quality commodities</p> <p>Flexible production due to short order fulfillment time</p> <p>Modern machines to enable an efficient and flexible production</p> <p>Networks</p> <p>Software for management and controlling</p> <p>Patents</p> <p>Finance for marketing</p> <p>Management and controls software</p> <p>High quality supply chain</p> <p>Stable and save processes</p> <p>Creative new products</p> <p>Brought product variety</p>		<p>Channels</p> <p><i>Marketing Mix</i></p> <p>Exhibitions (including truck)</p> <p>Web page</p> <p>Print media</p> <p>Social media</p> <p>Press releases</p> <p>Other internet reputation (google search)</p> <p><i>Sales department</i></p> <p>Sales employees</p> <p>International dealers</p> <p>Showrooms with product examples at company</p> <p>Personal contacts</p> <p>Continuous present at tournaments, fairs etc.</p> <p>Networks abroad</p> <p>Reputation and recognition of sales employees for a certain area</p> <p><i>Other</i></p> <p>Word of mouth & recommendations (most effective)</p> <p>Tradition of the company</p> <p>Brand stands for itself and supports the selling process</p> <p>A right mix of marketing channels is important</p>	
<p>Cost Structure</p> <p>Office employees</p> <p>Production employees</p> <p>Marketing</p> <p>Amortisations</p> <p>Rent</p> <p>Logistics</p> <p>Commodities</p> <p>Individuality</p> <p>Commission payments to international traders</p> <p>Training of employees</p> <p>Exhibitions</p> <p>Research and experimentation on novel technologies</p> <p>Corporation is value driven</p>			<p>Revenue Streams</p> <p>Sales of self-produced products</p> <p>Sales of trading products</p> <p>Consultation</p> <p>Brand</p> <p>Customers pay for the quality of the product and consultation as well as for the brand reputation, individuality and flexibility</p> <p>Prices are structures according to different product designs</p>	

Appendix B: Innovation division of business model canvas

Key Partners	Key Activities	Value Proposition	Customer Relation	Customer Segment
2	5	6	2	9
	Key Resources		Channels	
	8		11	
Cost Structure		Revenue Streams		
6		4		

Appendix C: Business model innovations of EQUI

Innovation	Year	Succeeded	Enabler / motivator	Degree	Relation to BMC
1 Cooperation with xxx GmbH	1988	Yes	Increasing the product spectrum and enhancing the turnover by implementing a new product	Incremental	Revenue Streams Customer Segment
2 Market penetration with broad product segment	1988	Yes	To receive more recognition on the market and enhance the turnover	Incremental	Revenue Streams Customer Segment
3 Founding of production site in east Europe		Yes	Searching for a more efficient way to produce. Recommendation from a stakeholder of the industry.	Incremental	Cost Structure Key Resources
4 Integration of exclusive design lane	1995	Yes	Architects required exclusive stables. Recognition of a new potential market.	Radical	Value Propositions Customer Segment
5 Concentration on exclusive and product lane rather than standard. Consciously changing the customer segment towards more wealthy people	2000	Yes	To follow market requirements Going where the largest turnover is expected	Incremental	Customer Segment Value Propositions
6 Expansion of export business	2000	Yes	High turnover potential Growth through access to new markets	Incremental	Revenue Stream Customer Segment
7 Company moves to a larger production site	2000	Yes	Larger production space To enable future growth	Incremental	Key Resources
8 Integration of a plasma robot	2003	Yes	Enhancing quality and reproducibility	Radical	Key Resources
9 Changing steel profiles from U to C shape	2005	Yes	Savings on material use due to more stability of C shape	Radical	Cost Structure
10 Show park inside	2005	Yes	Better consolidation	Radical	Channel
11 Company super-market	2005	No	Implementing an additional revenue stream	Radical	Customer segment Revenue streams
12 Sending company calendars to previous customers	2005	Yes	Enhancing customer relation and word of mouth	Incremental	Customer Relation Channels
13 Implementation of bamboo as a wood commodity	2005	Yes	Saving the environment Marketing tool Great design	Radical	Key Partners Key Resources Channels
14 Online distribution of low price horse box	2005	No	Increasing importance of the internet Additional revenue stream Less costs	Radical	Channels Customer Segment
15 Design improvements and extension of individual product lane	2005 - present	Yes	Meeting the needs of the exclusive customer segment	Incremental	
16 Stainless steel production	2006	Yes	Customers requirements	incremental	Value Propositions
17 Foundation of daughter company to build networks and brand reputation abroad	2009	Yes	Economic growth and increasing the number of potential customers.	Radical	Channels Customer Segment
18 Enhancing the quality of the web page and online reputation	2009	Yes	Believe customers increase the use of internet to search for information	Incremental	Channels
19 Exhibition truck	2009	Yes	Logistic for exhibition visits Strong brand reputation	Radical	Channels
20 Stronger engagement in individual product lane	2010	Yes, but	Recognition that customers require individual problem solutions	Incremental	Value Propositions
21 Show park outside	2010	Yes	Better consolidation	Radical	Channel
22 Purchasing stronger in China	2010	Yes	Keeping the value chain as efficient as possible	Incremental	Cost Structure
23 Conscious investigation in the upper 5% of the customer	2010	Yes, but	Recognition that the price does not play a role to some customers from abroad. Chance of great enhancements of the turnover.	Radical	Customer Segment
24 Employment of external design expert to enhance product design quality	2010	No	Lack of own ideas Receiving new external ideas	Incremental	Key Activities
25 Implementation of new IT system	2011	Yes	Increasing complexity of controlling. Lack of detailed information about processes Lack of a holistic overview of company's' performance	Incremental	Key Resources Key Activities
26 Implementation of web based information exchange platform about equestrian sport	2012	No	Enhancing a stronger reputation	Incremental	Channels
27 Social media presents	2012	Yes	To foster and widen the marketing mix	Incremental	Channels
28 Purchases of certified steel commodities	2013	Yes	Quality of (normal) previous steel decreased over the years	Incremental	Key Activities Key Resources
29 Purchase function on web page Online distribution of jumps	2014	Yes	Saving costs for employee interactions. Reaching out for new distribution channels. Less costs	Incremental	Channels Cost structure
30 Extension of production	2014	Yes			
31 Quality of production machines	2015	Yes	Improving quality of products. Product innovations required the change.	Incremental	Value Propositions Key Resources
32 Integration of plasma robot	2015	Yes			
33 Purchase and integration of service wagon.	2015	Yes	To implement a service vehicle with tools which can be driven by every employee without a special driving card. Better service for customer reclamations.	Incremental	Customer Relation Key Activity
34 Integration of welding robot	Past to Present	No	Better quality Faster, cheaper	Radical	Key resources Cost structure
35 Minor technical improvements	continuously	Yes	Staying at the edge of time with technology and processes	Incremental	Key activities
36 Increasing sales and material quantity to enable cheaper purchase of commodities		Yes	Enabling cheaper purchases of commodities	incremental	Cost Structure
37 Changing international dealers if necessary	/	Yes	Guarantying a stable quality of consolidation nationally and international	Incremental	Key Partners

Appendix D: Barriers and solution approaches to business model innovations of EQUI

	Barriers to Innovation	Solutions to overcome Barriers	Improvement of solution	Origin
1				
2				
3	Language Trust Lack of courage	Managerial choice	Successful implementation of production	Internal External
4	Uncertainty with new designs	Building new designs just as stable and functional as the standard lane to guarantee good quality	Very successful integration of exclusive product lane	Internal
5	Difficult production and calculation of costs Longer consolidation required Increasing number of suppliers Present production was too small.	Acquisition of employees, especially for technical illustrators Readjusting prices Support from external consultancies Moving the whole company to another town with large production space	Successful product lane change / implementation More efficient production Space to growth	Internal
6	International competitors Language & Culture Lack of networks and knowledge about customs duty, etc.	Building networks Employing more and local people	Enhancing language, culture and market knowledge Better access to international markets	Internal External
7	Costs	Banks Loans	Costs could be covered	Internal
8	Lack of knowledge on how to program the robot	Employing programmer and learning how to program	Robot runs well	Internal
9	Quality of material Changes in form due to rolling	Reclamations Complaining at supplier	Better quality Less complains	External
10	Costs	Managers' choice to invest		Internal
11	Attracted farmers but less equestrian people	Not succeeded	Not succeeded	Intern Extern
12	Costs Time	Managers' choice to invest		Internal
13	Wood will mould in horse stable Many reclamations More expensive	R&D on how to treat the wood right Exchanging many reclamations	Wood does nor mould anymore	External
14	Customer requires consultation Lack of resources	Not succeeded	Not succeeded	Internal External
15	Costs of individual designs Standard finances individual	Purchasing calculation software (Betriebs Daten Erfassung, BDE)	More accurate calculations	Internal
16	Knowledge about handling and processing the material	Support from external companies Building a separate production for stainless steel only	Successful integration of stainless steel product lane	Internal
17				
18	Lack of knowledge Finding the right partner	Creation of a request list External partners Many changes of suppliers	Eventually running a professional web page Better reputation of company and products	Internal External
19	Costs	Managers' choice to invest		Internal
20	Capacity of employees Production processes have to be changed	Invest capital and renounce short term profits Acquisition of more employees External support	Target achieved, but with reduction of overall profit	Internal
21	Costs	Managers' choice to invest		Internal
22	Network of suppliers, Trust, Large order quantity required	Cooperating with befriended company of the industry	Better access to suppliers	Intern / Extern
23	Very exclusive requirements Being able to also produce what was promised in the negotiation. Difficult cost calculation.	Decision to not do more than 1 or 2 of those projects per year to not decrease the production capacity for normal projects much.	Stable production Better calculation of costs	Internal
24	Designs were difficult to produce and not accepted by the customer. Safety issues of new designs	Not succeeded	Not succeeded	Internal External
25	Negative novelty effect First supplier had too less capacity for full consultation and training	Change of supplier Time	More training and support Better acceptance of system	Internal External
26	Already existed elsewhere Costs Difficult to realise	Not succeeded	Not succeeded	Internal External
27	Lack of knowledge about functions and legal rights	Time and support	Successful social media	Internal
28	Costs	Managers' choice to invest		Internal
29	Adoption of online purchasing Administration of logistic Costs of sending Legal framework of online distribution	Time Experiences Referring to online option	Online purchases	Internal External
30				
31	New cutting machine had difficulties at to run properly.	Waiting for an additional spare part to arrive.	Making the machine run properly	Internal
32				
33	Responsible employee for service wagon quit his job.	Acquisition of new employee	Back to normal	Internal
34	Exact pre manufacturing Higher material quality required	Not succeeded	Not succeeded	Internal
35	Costs Existing assets	Managers' choice to invest		Internal
36	Production capacity	Managers' choice to invest		Internal
37	Finding the right partner	Research		Internal External

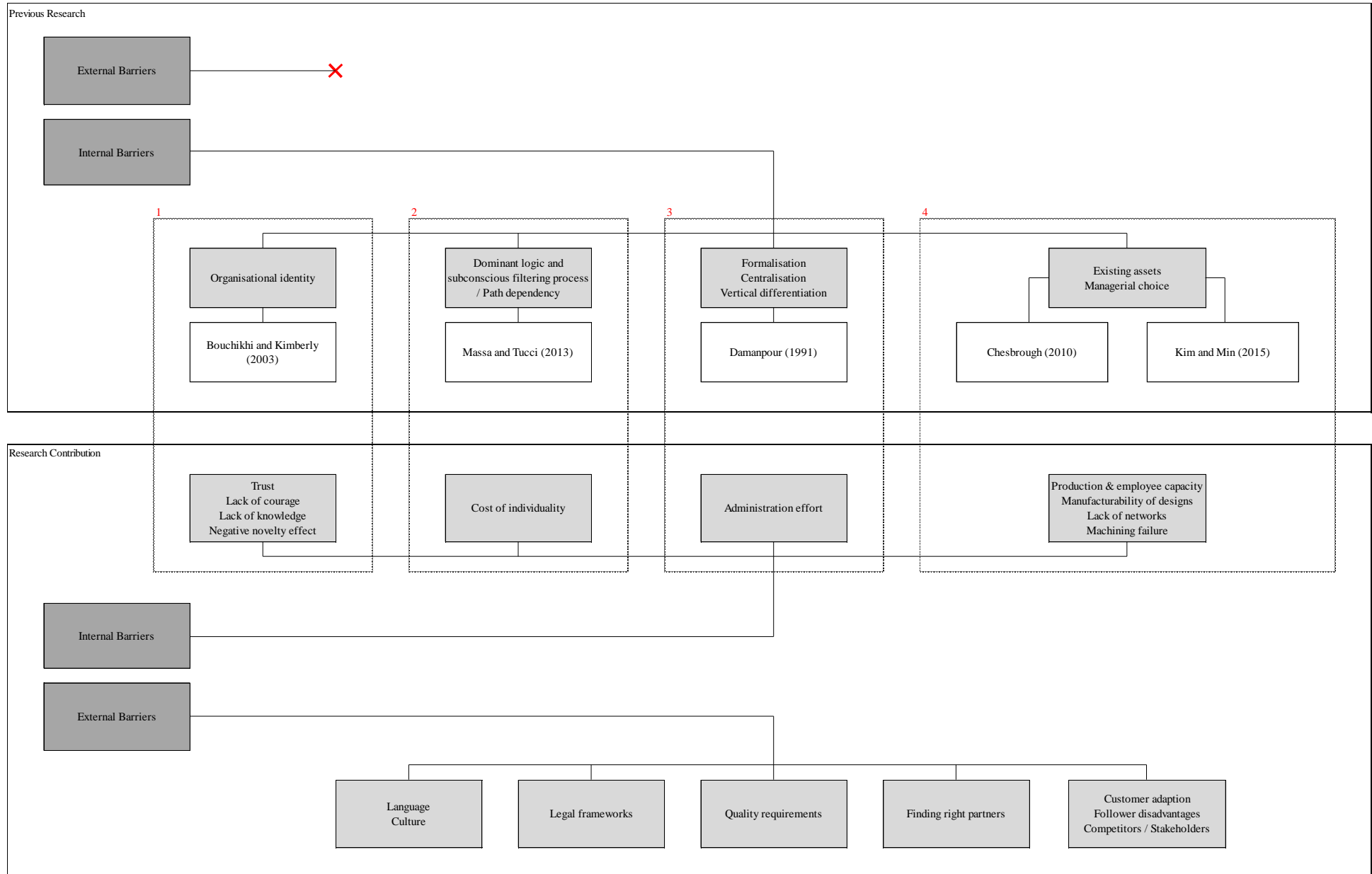
Appendix E: Barriers division of business model canvas

Key Partners	Key Activities	Value Proposition	Customer Relation	Customer Segment
0/1/1	3/0/2	5/0/0	2/0/0	3/0/3
	Key Resources		Channels	
	5/1/2		5/1/4	
Cost Structure		Revenue Streams		
2/1/3		0/0/2		

0 / 1 / 2

| | |
 | | 1
 | | Number of internal as well as external barriers
 | | Number of external barriers
 | | Number of internal barriers

Appendix F: Research contribution



Appendix G: Interview structure and questions

0. Explaining the interviewee what a BM, BMC and BMI are.

BM	Logic of a firm on how to create, deliver and capture value Unit of analyses which offers a systematic perspective Cost and revenue architecture, including strategic issues
BMC	Quick and holistic visualisation of value creation process underlying a BM Captures important relationships to partners Level of abstraction for BMs / Experimentation tool for BMI
BMI	BM design (BMD) and BM reconfiguration BMR: Change of existing BMs in terms of the acquisition of resources Role of the firm in the value chain - Stakeholders can be new positioned BMI can create value and be an own source of innovation

1. Drawing down the business model of EQUI in the business model canvas.

- 1.1 What are the Value Propositions of the firm?
- 1.2 What is the Customer Segment of the firm?
- 1.3 Through what Channels does the firm deliver value to the customer segment?
- 1.4 What does the firm do to meet the expectations in terms of Customer Relation?
- 1.5 What Key Activities does the firm need to do to run their BM concept?
- 1.6 What Key Resources does the BM require to perform well?
- 1.7 Who are the key partners for the firm to create, deliver and capture value?
- 1.8 What are the main Costs of the firm?
- 1.9 What are the main Revenue Streams of the firm?

2. Searching for business model innovations. Question all columns of the innovation table. Also and especially ask for BMI which did not succeed.

2.1 Did anything related to the Value Proposition	change in the last 30 years?
2.2 Did anything related to the Customer Segment	change in the last 30 years?
2.3 Did anything related to the Distribution Channels	change in the last 30 years?
2.4 Did anything related to the Customer Relation	change in the last 30 years?
2.5 Did anything related to the Key Activities	change in the last 30 years?
2.6 Did anything related to the Key Resources	change in the last 30 years?
2.7 Did anything related to the Key Partners	change in the last 30 years?
2.8 Did anything related to the Cost Structure	change in the last 30 years?
2.9 Did anything related to the Revenue Streams	change in the last 30 years?

3. Find out more about these BMIs and about their barriers. Write answers in table connected to each innovation.

- 3.1 When did the organisation plan the innovation?
- 3.2 Has the BMI been successfully implemented by today?
- 3.3 What were the enablers of the innovation?
- 3.4 Was the innovation new to the company or new to the whole industry?
- 3.5 To which of the building blocks of the BMC can you relate the BMI?
- 3.6 Did any types of barriers affect the implementation of the BMI negatively?
- 3.7 Were those barriers of internal or external nature?
- 3.4 What were the solution approaches to overcome these barriers?
- 3.5 How did the solution approaches support the implementation process of the BMI?