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Business Model Configurations

Paving the Road for Comparable Data on Business Models

Thomsen, Peter

Publication date:
2020

Document Version
Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

Citation for published version (APA):

Thomsen, P. (2020). *Business Model Configurations: Paving the Road for Comparable Data on Business Models*. Aalborg Universitetsforlag. Aalborg Universitet. Det Samfundsvidenskabelige Fakultet. Ph.D.-Serien

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BUSINESS MODEL CONFIGURATIONS

PAVING THE ROAD FOR COMPARABLE
DATA ON BUSINESS MODELS

BY
PETER THOMSEN

DISSERTATION SUBMITTED 2020



AALBORG UNIVERSITY
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**PAVING THE ROAD FOR COMPARABLE DATA ON
BUSINESS MODELS**

by

Peter Thomsen



AALBORG UNIVERSITY
DENMARK

Dissertation submitted

Dissertation submitted: April 2020

PhD supervisor: Associate Prof. Morten Lund
Aalborg University

PhD committee: Professor WSR Thomas Borup Kristensen
Aalborg University (chairman)

Associate Professor Anna B. Holm
Aarhus University

Associate Professor Andrew Earle
University of New Hampshire

PhD Series: Faculty of Social Sciences, Aalborg University

ISSN (online): 2246-1256
ISBN (online): 978-87-7210-630-4

Published by:
Aalborg University Press
Langagervej 2
DK – 9220 Aalborg Ø
Phone: +45 99407140
aauf@forlag.aau.dk
forlag.aau.dk

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Printed in Denmark by Rosendahls, 2020

Standard pages: 171 pages (2,400 characters incl. spaces).

ENGLISH SUMMARY

This research aims to strengthen the theoretical basis within the field of business models, by proposing a way to develop comparable data on the concept. The main contribution comprises a software-based structure referred to as Business Model QUANT (BMQ), which enables more precise and consistent data collection and data management of business models. The software comprises two main modules: a relational database representing the analytical construct and a questionnaire module for data collection that links directly to the database. Although more research is needed in the future, this dissertation represents an important milestone as it accounts for the origin and the development of BMQ research instrument. Moreover, it investigates the application potential to existing fields of research, including business models, business model innovation, management accounting and intellectual capital, and looks towards practical contributions.

The first paper, *Business model configurations: a five-V framework to map out potential innovation routes*, accounts for the initial steps in this research and is grounded in the notion of viewing business models as activity systems. The paper subsequently highlights the relevance of business model configurations (generic archetypes) and further develops the concept of business model value drivers, which constitutes a foundational element and a central point of reference for the following papers in this dissertation. However, while the research represents an important step for the overall research objective of this dissertation, the paper itself is framed within business model innovation to explore and impart a more immediate contribution to both theory and practice. By conducting a structured literature review, the paper systematically identifies 71 business model configurations and develops a classification scheme according to five groups: Value Proposition, Value Segment, Value Configuration, Value Network and Value Capture (Taran et al., 2016). Based on these categories, the paper outlines a framework for identifying potential innovation routes for companies, while inspiring managers to envisage new concepts.

The second paper, *Killing the balanced scorecard to improve internal disclosure*, seeks to further identify and conceptually validate the relevance of representing business models through generic abstracts and subsequent value drivers. With a starting point in current management information practices, the paper investigates whether the contemporary conceptions of value creation from business models have the potential to close gaps or improve internal management disclosures. Thus, the paper offers a well-timed critique of the balanced scorecard along with other relevant performance measurement frameworks developed over the past 25 years. Through a literature review, two critical issues within existing management information practices are identified: 1) the internal management disclosures derived from contemporary frameworks are too generic in their level of abstraction; 2) existing methods for identifying relevant management disclosures are outdated. We follow up

on these critiques by discussing the implications for business models in the literature, including the preliminary findings in this research, and subsequently introduce the initial structure and functionality of the Business Model QUANT database. Through this discussion, we depict a novel and cross-disciplinary research agenda with contributions to fields of research on business models, intellectual capital disclosure, integrated reporting and benchmarking.

The third paper, *Business Model Innovation or Business Model Imitation – That is the Question*, is the result of the first large data collection conducted through the BMQ. The paper explores the phenomenon of business model imitation and sheds light on its relation to business model innovation. The analysis focuses on similarities and deviations of business model configurations among 80 companies operating in the Phantom Limb Pain (PLP) related industry. Employing a questionnaire-based mapping tool, companies within the PLP industry are shown to apply relatively similar business model configurations. When the analysis is kept to the industry sub-group level, a few central business model configurations are adopted regardless of contingent factors. Our results indicate that imitation practices take place not only in relation to strategy, product or technology dimensions, but also in relation to applied business model configurations. Further, business model imitation practices pose different challenges compared to other forms of imitation, such as product imitation, particularly within the configuration context. Given the complex nature of business model imitation, it may be difficult for companies to observe whether they are unconsciously imitating other companies' business model configurations. This inability to distinguish between business model imitation or differentiation, within the context of business model innovation, results in firms' concentration around a few business model configurations, which may lead to more hypercompetitive industrial environments.

The fourth paper, *Do Business Model disclosures lead to faithful representation of value drivers: Evidence from the UK*, is the result of the second large round of data collection and reflects on the need to describe companies' value creation processes holistically, where a new agenda within financial reporting is evolving through the introduction of business models as a regulatory requirement. However, current regulation continues to provide companies with significant discretion in deciding what and how to communicate. Previous studies have reported the inability of companies' disclosure practices to represent the business model in a coherent fashion; however, these studies tend to disagree concerning the level of disclosure and whether or not this is a problem. Furthermore, most studies of business model disclosure have been conducted at a relatively low level of abstraction. This exploratory paper utilizes both a holistic approach and a more detailed level of abstraction to identify the extent of disclosure made by companies. The paper examines the levels of mandatory business model disclosure among a sample of 75 United Kingdom (UK) companies listed on the London Stock Exchange from 2014–2016.

The fifth paper, *Dynamic Content Analysis – A reflection and approach to do analysis on non-stationary contexts*, depicts a new way forward for content analysis in intellectual capital research. The paper, written as a book chapter, describes and reflects on the analysis methods enabled by the BMQ. By addressing common issues and shortcomings concerning content analysis in intellectual capital, the paper presents new solutions to this often criticized method. In doing so, the paper draws on the fundamental notions on content analysis, from which a new construct is formulated: dynamic content analysis. Through the notion of “dynamic”, the paper emphasizes the need for theoretically-grounded analytical constructs to improve three primary aspects of content analysis in intellectual capital, namely: methods of data collection, more precise analytical inferences and better comparability between data. Although intellectual capital is the predominant focus of this paper, the paper builds upon ideas presented in the second paper of this dissertation. In this way, it extends the concept of business models into the field of intellectual capital with mutual benefits to both.

The sixth paper, *Booster Cards: A Practical Tool for unlocking Business Model Innovation*, links to the first paper of this dissertation, specifically the developed 5V framework. The paper elaborates further on the contribution to business model innovation and investigates the implications of implementing business model configurations in the process. For this purpose, we develop so-called ‘stimulus cards’, intuitively presenting the configurations from the classification scheme developed in the first paper. While other similar stimulus cards already exist, this paper emphasizes the applied aspects in which teaching is used as backdrop to develop an analogy-based approach to strengthen the teaching process and enhance student motivation. The paper lays the groundwork for further research on business model configurations and their potential contribution to innovation processes.

DANSK RESUME

Formålet med denne afhandling er at styrke det teoretiske grundlag for forretningsmodeller via udvikling af en metode som kan generere sammenlignelige data om konceptet. Hovedbidraget omfatter en softwarebaseret struktur, Business Model QUANT (BMQ), der muliggør en mere præcis og ensartet dataindsamling og datastyring af forretningsmodeller. Softwaren består af to primære moduler hhv. en relationel database, der repræsenterer den analytiske konstruktion, samt et spørgeskemamodul til dataindsamling, der linker direkte tilbage til databasen. Selvom yderligere forskning forventes i fremtiden, repræsenterer denne afhandling en vigtig milepæl, da den danner rammen om oprindelsen og udviklingen af BMQ-forskningsinstrumentet. Således beskriver denne afhandling anvendelsespotentialer af BMQ til praksis og eksisterende forskningsområder, herunder forretningsmodeller, økonomistyring og intellektuel kapital.

Den første artikel, *Business model configurations: a five-V framework to map out potential innovation routes*, redegør for de indledende trin i denne forskning og er baseret på forestillingen om at se forretningsmodeller som aktivitetssystemer. Artiklen fremhæver herefter relevansen af forretningsmodelskonfigurationer (generiske arketyper) og udvikler konceptet om forretningsmodellens værdi drivere, som udgør et grundlæggende element og et centralt referencepunkt for de følgende artikler i denne afhandling. Dermed repræsenterer artiklen et vigtigt skridt for det samlede forskningsmål ift. denne afhandling, men udleder i første omgang bidrag til forretningsmodellinnovation, herunder teori og praksis. Gennem en struktureret litteraturgennemgang identificerer artiklen systematisk 71 forretningsmodelkonfigurationer og udvikler dertil en kategorisering i henhold til fem grupper: Værditilbud, værdisegment, værdikonfiguration, værdinetværk og værdiudbytte. På baggrund af disse kategorier skitserer artiklen en ramme til identificering af potentielle innovationsruter for virksomheder, mens den inspirerer ledere til at forestille sig nye forretningsmodels koncepter.

Det anden artikel, *Killing the balanced scorecard to improve internal disclosure*, søger yderligere at identificere og konceptuelt validere relevansen af at repræsentere forretningsmodeller gennem generiske abstrakter og dertilhørende værdidrivere. Med et udgangspunkt i den nuværende ledelsesinformationspraksis, undersøger artiklen, om de aktuelle koncepter ift. værdiskabelse fra forretningsmodeller har potentiale til at lukke huller eller forbedre intern rapportering. Artiklen giver således en rettidig kritik af Balanced Scorecard, sammen med andre relevante præstationsmålingsværktøjer, der er udviklet i løbet af de sidste 25 år. Via en litteraturgennemgang, identificeres to kritiske problemer ift. den nuværende praksis for ledelsesinformation: 1) de interne ledelsesoplysninger, der stammer fra moderne rammeværktøjer, er for generiske i deres abstraktionsniveau; 2) eksisterende metoder til identifikation af relevante ledelsesoplysninger er forældede. Vi følger op på disse

kriterier ved at diskutere implikationerne for forretningsmodeller, herunder de foreløbige fund i denne forskning og derefter ved at fremlægge den indledende struktur og funktionalitet i BMQ-softwaren. Gennem denne diskussion afbilder vi en ny og tværfaglig forskningsdagsorden med bidrag til forskningsområder inden for forretningsmodeller, intellektuel kapitaloplysning, intern rapportering og benchmarking.

Den tredje artikel, *Business Model Innovation or Business Model Imitation – That is the Question*, er resultatet af den første store dataindsamling gennemført via BMQ softwaren. Artiklen udforsker fænomenet ”forretningsmodelimitation” og kaster lys over dets forhold til forretningsmodelinnovation. Analysen fokuserer på ligheder og afvigelser i forretningsmodelkonfigurationer blandt 80 medico-tech virksomheder, der opererer i den samme industri: behandling af fantomsmerter. Ved hjælp af et spørgeskemabaseret kortlægningsværktøj tegner denne forskning et billede af, hvorledes virksomheder inden for PLP-branchen anvender relativt lignende forretningsmodeller. I henhold til imitationsteori, antyder resultaterne således, at imitation ikke kun finder sted i relation til strategi, produkt eller teknologi, men også i relation til anvendte forretningsmodelkonfigurationer. I betragtning af den komplekse karakter af forretningsmodelimitation kan det være vanskeligt for virksomheder at se, om de ubevidst imiterer andre virksomheders forretningsmodel. Denne manglende evne til at skelne mellem imitation eller -differentiering inden for rammerne af forretningsmodelinnovation ser således ud til at medføre en koncentration af nogle få bestemte forretningsmodeller, hvilket i sidste ende kan ses som resultat i form af skærpet konkurrence blandt nogle industrielle miljøer.

Den fjerde artikel, *Do Business Model disclosures lead to faithful representation of value drivers: Evidence from the UK* er resultatet af den anden runde med dataindsamling og reflekterer over behovet for at beskrive virksomheders værdiskabelsesprocesser holistisk. Dette studies relevans knytter sig til en ny dagsorden indenfor finansiel rapportering, hvor forretningsmodeller i stigende grad er, eller bliver, et lovkrav. Imidlertid giver den nuværende regulering, virksomheder betydelig frihed til frit at forme hvilket og hvordan der skal kommunikeres. Tidligere undersøgelser således har rapporteret om manglende evne fra virksomheders side til at rapportere forretningsmodellen på en sammenhængende måde. Disse undersøgelser har dog en tendens til at være uenige om ”graden af rapportering”, og ligeledes hvorvidt dette er et problem eller ej. Desuden er de fleste undersøgelser af afsløring af forretningsmodeller blevet udført på et relativt lavt abstraktionsniveau. Gennem en nyudviklet metode, anvender undersøgelsen i denne artikel en helhedsorienteret tilgang og et mere detaljeret abstraktionsniveau til at identificere virksomheder reelle rapportering af forretningsmodeller. Artiklen undersøger således graden af obligatorisk offentliggørelse af forretningsmodeller blandt en stikprøve af 75 virksomheder fra Storbritannien (UK), noteret på London-børsen fra 2014–2016.

Den femte artikel, *Dynamic Content Analysis – A reflection and approach to do analysis on non- stationary contexts*, skildrer en ny vej frem for indholdsanalyse i intellektuel kapital. Kapitlet, beskriver og reflekterer over analysemetoderne muliggjort af BMQ softwaren. Med udgangspunkt i generelle problemer og mangler ved indholdsanalyse i intellektuel kapital, præsenterer dette kapitel nye løsninger ift. denne, ofte kritiserede, metode. Kapitlet refererer til de grundlæggende forestillinger om indholdsanalyse, hvorfra en ny konstruktion formuleres: dynamisk indholdsanalyse. Gennem begrebet ”dynamisk” understreges behovet for mere teoretisk funderede analytiske konstruktioner med henblik på at forbedre tre primære aspekter af indholdsanalyse i intellektuel kapital. Disse udgør: metoder til dataindsamling, mere præcise analytiske sammenslutninger og bedre sammenlignelighed mellem data. Selvom intellektuel kapital er det dominerende fokus i dette kapitel, bygger undersøgelse på ideer allerede præsenteret i anden artikel i denne afhandling. Derved udvider det begrebet omkring forretningsmodeller til området intellektuel kapital med gensidige fordele for begge.

Den sjette artikel, *Booster Cards: A Practical Tool for unlocking Business Model Innovation*, udgør en viderebygning på den første artikel i denne afhandling – mere specifikt den udviklede 5V-rammeverktøj. Artiklen uddyber yderligere bidraget til forretningsmodelinnovation og undersøger implikationerne ved implementering af forretningsmodelkonfigurationer i selve processen. Til dette formål anvendes såkaldte 'stimuluskort', hvor vi intuitivt præsenterer konfigurationer fra klassificeringsskemaet udledt i første artikel. Velvidende, at der allerede findes andre lignende stimuluskort, beskæftiger dette kapitel sig i højere grad de anvendte aspekter. Herunder udgør undervisning et fundamentalt redskab ift. udviklingen af en analogibaseret tilgang. Formålet er her at styrke undervisningsprocessen og forbedre de studerendes motivation. Kapitlet repræsenterer således et yderligere skridt på vejen ift. forskning i forretningsmodelkonfigurationer og deres potentielle bidrag til innovationsprocesser.

ACKNOWLEDGEMENTS

A number of people deserve my gratitude for their help and guidance throughout the three years of this PhD project.

First and foremost I would like to extend my gratitude to my supervisors Associate Professor Morten Lund and Professor Christian Nielsen. Many thanks to you Morten, for your help when needed and for being ever supportive by taking the time to assess my overall progress as well as making sure I was on track all the way to submission. Christian, thank you for giving me the opportunity to write this dissertation and for being my “partner in crime” during this project. From the beginning you have been supportive with ideas, advice and resources. I hope we can continue our collaboration in the future, to pursue our ambition to build the world’s best database on business models.

Professor Thomas Borup Kristensen also deserves my gratitude. Thomas, thank you for keeping your door open at all times, for keeping my spirit high, as well as providing me with concrete answers and solutions.

This research would never have materialized without a support of the ever motivated “Business Model QUANT team”. Special thanks to Marco Montemari, Yariv Taran, Stefan Schaper, Francesco Paolone, Lorenzo Simoni and Dan Skøtt Petersen. You all have a special place in this project and I hope you will continue to be involved in the future.

I would also like to thank my near colleagues Jesper Sort, Kristian Brøndum and Jeanne Sørensen Bentzen for being ever helpful, supportive and fun to be around. You all have contributed to this dissertation on so many levels.

Thank you to my dear wife Nikoline, for supporting me unconditionally and for being a fantastic mother to our daughter Alva. You helped me to stay afloat throughout this process by motivating me to work as well as to take time off. You kept our family together while I was spending long hours at the office.

Last but not least, thank you to my dear parents Ingrid and Jens for supporting me and for encouraging my curiosity in this world from early on.

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CHAPTER 1. INTRODUCTION

1.1. BACKGROUND AND RESEARCH OBJECTIVE

The concept of “Business Models” has gained a lot of prominence amongst academics and practitioners in recent years. This success is mainly rooted in the strong emphasis on customer value creation (Nielsen and Roslender, 2015), which both researchers and practitioners seem to find essential. Customers are considered the heart of any business; the customers’ perception of value determines the level of success of the business. In other words, the value of the products determines success – not the products’ features per se (Nielsen et al., 2018). The concept of business models embraces this line of thinking by centering the value proposition among customer interface, infrastructure management and financial aspects (Nielsen et al., 2018; Osterwalder et al., 2005), and thus the concept offers a frame of reference for businesses to sort and align their value creating activities effectively towards the customer.

This research stems primarily from a practical and personal interest, which was correspondingly identified in the literature as a topic of debate. Working hands-on with companies on business model innovation led me to identify several shortcomings and obstacles that I was unable to find solutions for in the general business model literature. Typically, these issues were related to the development of new business models as well as the operationalization of these. While several frameworks for mapping and designing business models are readily available (Bouwman *et al.*, 2008; Chesbrough and Rosenbloom, 2002; Gordijn and Akkermans, 2001; Johnson, 2010; Osterwalder and Pigneur, 2010; Weill and Vitale, 2001), they all seem to share the same limitation, namely, the quality of the output of these frameworks relies primarily on the capabilities of the user. These frameworks have limited theoretical support, including tools that can support the users during different stages, including assessment, prototyping, forecasting or operationalization of new business models. The result of this, practitioners may find business models inaccessible and of limited value. Although tools such as the Business Model Canvas (BMC) by Osterwalder and Pigneur (2010) seemingly have expanded the awareness of business models, the concept has yet failed to advance beyond a tool organizing and prioritizing value creating activities. As an experienced user, teacher and promoter of the BMC, I believe the framework constitutes an effective and accessible gathering point to discuss business models. However, when reality closes in and eventual discussions on forecasting and operationalization are exerting pressure, arguments tend to become indistinct. While this is based on my own observations, a pressing question arises as to how this might be reflected in the literature?

By studying the existing literature, it quickly became clear that the absence of larger studies based on comparable data constituted a pressing issue. Without comparable data – let alone comparable studies – inferences towards best-practice theories are difficult. Seemingly, several researchers identify this issue as well (Fielt, 2014). Although business models have gained a lot of attention in recent years, the general

literature still perceives it as a “concept in development” as it has not yet found a solid standpoint in general business management (Fielt, 2014). Evolving from a vague and widespread term, the concept of business models has over the past 20 years gained a successful foothold in the minds of many researchers and practitioners with its focus on customer value creation and attempts to account for a persistent question as to why/how a company is/becomes profitable (Nielsen et al., 2017a). However, contemplating the latter years of development and debate, we may start to question whether the concept perhaps promises more than it can actually deliver. So while the business model constitutes a common language among researchers and practitioners, it remains unable to present actual theories, hence, it offers limited notions of “best practice” (Fielt, 2014; Groth and Nielsen, 2015; Lambert, 2015). In line with existing research, this dissertation advocates for the necessity of larger empirical datasets that allow better comparability between business models to eventually define better concepts. I thus formulate the following research question:

How can comparable data on business models be created and what are the implications?

In the attempt to answer the research question, this research attempts to develop an empirically validated structure that will eventually enable consistent framing and assessment of business models in statistically significant samples. This research thereby aims at strengthening the theoretical basis within the field of business models, hence, proposing a way forward for developing comparable data on the concept. The main contribution from this research comprises a software-based structure referred to as Business Model QUANT (BMQ), which enables more precise and consistent data collection and data management of business models. The software comprises two main modules: a relational database representing the analytical construct and a questionnaire module for data collection that links directly to the database. Through this software, value creation patterns are identified, which may be interpreted as personality tests of companies’ value creation. The focus is on explaining how value drivers are used to create links between different business model configurations.

Although further research is needed in the future, this dissertation represents an important milestone as it accounts for the origin and the development of the BMQ research instrument. Moreover, it investigates application potential to existing fields of research, including business models, business model innovation, management accounting and intellectual capital, and also provides an outlook towards practical implications.

1.2. THEORETICAL POSITIONING

1.2.1. BUSINESS MODELS

Over the past 15 years, the theoretical concept of business models has developed. Evolving from a vague and widespread term, business models as a concept has now gained a foothold within the minds of many researchers and practitioners consequently to its focus on customer value creation (Nielsen et al., 2017a). Business models offer a new and innovative frame of reference to the principles of value creation that was not previously available. Based on this development, I believe that business models inevitably hold the key to unlock essential structures that will allow new value-based performance measurements to be designed.

Though often presented as a young field, this research argues, in line with Nielsen et al. (2017a), how the notions of business models can be traced back to the seminal work of Chandler (1962) and Child (1972). However, today many scholars within business model research seem to agree that the emergence of the internet spawned the concept as we know it today (Amit and Zott, 2001). The Internet allowed for numerous new ways of configuring businesses, which eventually resulted in the genesis of many new types of business models and, thereby, an increased interest in developing this theoretical area. The field of business models is at present characterized by a series of concepts, techniques and frameworks for analysing, communicating, innovating and internationalizing companies and the way they create value (Amit and Zott, 2012; Baden-Fuller and Morgan, 2010; Chesbrough, 2003; Demil and Lecocq, 2010; Magretta, 2002; Nielsen, 2011; Osterwalder and Pigneur, 2010).

Today, the variety of business models has expanded and over the past years the term has surged into the strategic management and strategy vocabulary and spread across virtually every industry (Shafer *et al.*, 2005). In 2008, Christensen and Johnson, concluded that 14 of the 19 entrants into Fortune 500 since the millennium owed their success to business model innovation in some form, while this seemed to further support the idea that business models are inherently interlinked with business performance and thus important to understand (Teece, 2010) and measure (Montemari and Nielsen, 2013).

Turning towards academic literature, the conceptual discussion of business models seem to have entered a plethora of disciplines, including: information systems, e-business, innovation, entrepreneurship, economics, and management (Amit and Zott, 2001; Hedman and Kalling, 2003; Morris *et al.*, 2005; Pateli and Giaglis, 2004; Teece, 2010). Furthermore, business model research has addressed definitions, components, taxonomies, conceptual models, design methods and tools (Fielt, 2011; Pateli and Giaglis, 2004). Although, an overall understanding of business models can be difficult to attain on the basis of this literature. To a large extent, it is up to the individual researcher to develop their own understanding of the concept.

To develop a shared understanding in this research, Morris *et al.* (2005) attempt to tackle the different approaches by creating an overview through a larger literature review on perspectives on business model components. Based on this literature review, Morris *et al.* (2005) concludes that the number of components mentioned varies from four to eight. In conjunction, he identifies 24 variations of components, with 15 obtaining multiple mentions. The most frequently cited are the firm's value offering (11), economic model (10), customer interface/relationship (8), partner network/roles (7), internal infrastructure/connected activities (6) and target markets (5). Based on these findings, Morris *et al.* (2005) develops what they call "a unified perspective of business models" and argue that six basic questions need to be taken into consideration when presenting any business model framework:

1. Factors related to the offering (product or/and service) – *how do we create value?*
2. Market factors – *who do we create value for?*
3. Internal capability factors – *what is our source of competence?*
4. Competitive strategy factors – *how do we competitively position ourselves?*
5. Economic factors – *how do we make money?*
6. Personal/investor (growth/income) factors – *what are our time, scope and size ambitions?*

These six questions are based on a larger literature review on perspectives on business model components. Morris *et al.* (2005) claim that their "unified perspective of business models" provides a holistic framework, which enables any company to analyse its business model. This claim might be true, but the question remains: to what extent may a company analyse their business model using this framework? Though Morris *et al.* (2005) manage to successfully derive some key components of a business model, they fail to elaborate much on the linkages between these, which is considered a limitation. Fiel (2014) stresses that business model frameworks and ontologies do not only define the elements – they also address the relationships between the elements and introduce some structure.

In continuation of the findings by Morris *et al.* (2005), Osterwalder *et al.* (2005) developed their interpretation of a generic business model framework, which has become the most cited framework yet. Similar to Morris *et al.* (2005), Osterwalder *et al.* (2005) developed the framework on the basis of works by various scholars, in the endeavour to create a "common language" in the field of business model literature. The framework divides businesses into four pillars, namely: product, customer

interface, infrastructure management and financial aspects. These are further divided into nine so-called “building blocks” containing individual configurations.

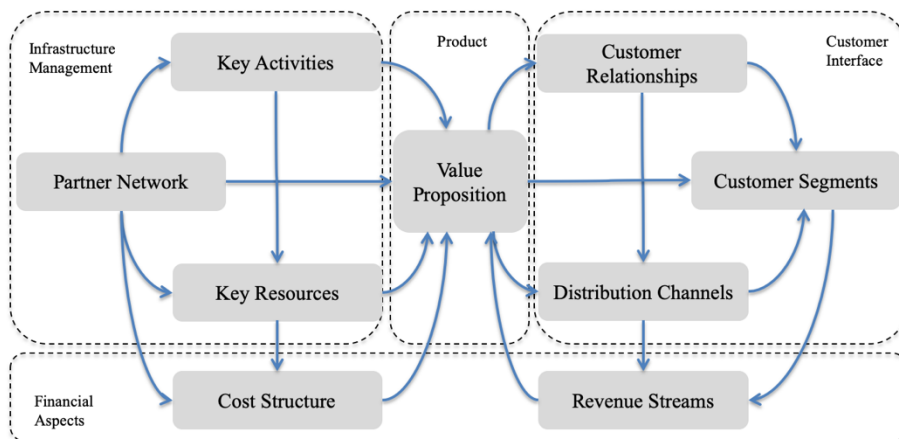


Figure 1-1. The nine building blocks of the business model canvas and their individual relationships (Osterwalder et al., 2005)

This framework has since been developed into a more commercial design and is today known as the “Business Model Canvas” (BMC). Because Osterwalder and Pigneur (2010) built their framework from a combination of the work of various scholars and information from various practitioners, the generalizability of the framework is considerably higher than other business model frameworks, hence, the commercial success.

More than ever, the concept of business models offers visualization possibilities and allows for greater explanation and dissemination of the mechanics behind value creation. For that particular reason, a research branch referred to as business model configurations, representing the study of real-life business models, has emerged in the wake of these new understandings (Nielsen et al., 2017b). Through the possibility of capturing the essence of value creation in successful companies, it focused on what enables certain business models to perform well. Depending of type and industry, successful companies prove to have different business model strengths (Nielsen et al., 2017b). In the business model of some companies the core strengths are prevalent to a degree whereby they can be recognized by most people (Nielsen et al., 2017b). Based on the BMC, Figure 1.1 illustrates how well-known corporations are especially strong within the individual building blocks of the business model framework.

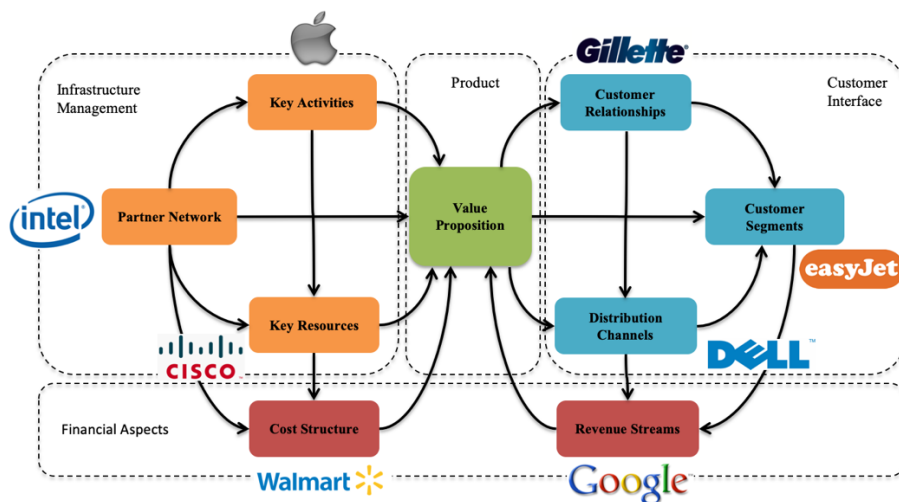


Figure 1-2. Large corporations and their individual business model strengths (STL Partners, 2007)

It is business models such as these that have been investigated and offer interesting insights for both scholars and practitioners to generalize in order to derive “formulas” for creating successful businesses (Pateli and Giaglis, 2004). Generated by an interest of constructing business model definitions and frameworks, there has simultaneously been a growing aspiration to identify and frame generic structures of successful business models within and across industries to discuss and define value creation (Nielsen *et al.*, 2017a). With further inspiration from Nielsen *et al.* (2017a) and Taran *et al.* (2016), we see for example: Johnson (2010a) who presents 19 so-called “business model analogies”, while Timmers (1998) offers 10 “internet business models”. Leaning against the term “business model patterns” Osterwalder and Pigneur (2010) initially defined 5 different variations, while Gassmann *et al.* (2014) later presented 55 patterns using a purposely developed four-dimensional framework comprising the value proposition (what?), value chain (how?), profit mechanism (why?) and target customer (who?). Through this approach, Gassmann *et al.* (2014) effectively introduces more structure and thus succeeds in presenting one of the most comprehensive compilations of business model configurations (Nielsen *et al.*, 2017b). However, Gassmann *et al.* (2014) does not elaborate further on categorization aspects, while the framework is mainly used to investigate the features of each individual configuration (Nielsen *et al.*, 2017b). As further underlined by Nielsen *et al.* (2017b), this approach likely results in limited comparability and eventual synergies between patterns. If approached correctly Nielsen and Lund (2014), argue how the study of business models configurations potentially provides better insights the nature of business performance and thus why some companies are more profitable than others although they operate in the same industry and practice similar strategies.

In 1998, Stabell and Fjeldstad (1998) suggested that the value chain is but one of three generic value configuration models alongside the value shop logic and the value network logic. In regards to the latter, Allee (2000) and Nielsen and Montemari (2012) stresses that integration of knowledge and intangible value exchange in the current representation models, should be considered a requisite to analyse the impact of a given business model.

In continuation of previous work on business model configurations, this research emphasizes the representation and categorization aspects. This focus offers a way to identify “best practice parameters” and thereby value drivers across different configurations. Categorization is considered important in all forms of scientific research (Neuman, 2003) as a good classification scheme is the foundation of theory development (Bailey, 1994; McKelvey, 1982). In order to advance from concept to theory, it is essential to include classification in the research. This is seen as an important first step as it is the foundation for extensive quantitative data gathering. The use of classification in this way can be transferred onto representation theory, which will be elaborated in a separate section below.

Before I get to this, it is worth mentioning that a state-of-the-art paper published in the *Journal of Management* by Zott *et al.* (2011) suggests that the concept of business models as activity systems might warrant further investigation.

1.2.2. ACTIVITY SYSTEMS THEORY

As mentioned in the previous section, the concept of business models has been subject to much debate over the past 15 years. One of the main debates has been in regards to the level of utility of the concept. Zott and Amit (2013) emphasize the value of the business model concept along with its valuable properties to investigate the realities of doing business in a highly inter-connected world. In addition to this, they stress the relevance of using activity systems theory as the link between business models and real-life businesses.

Activity systems theory takes its point of departure in the conception of “activity”. Activities can be perceived as systems of “human actions” whereby a subject works on an object in order to obtain a desired outcome (Bauman and May, 2001). A subject must therefore employ tools, which may be external (for example, a hammer) or internal (for example, a plan) in order to do this. As an example, the activity could be the operation of an automated call center (Engeström *et al.*, 1999). Transferred onto the concept of business models, Zott and Amit (2010) argue that a business model explains a system of independent activities that are performed by the company, its eventual partners, and the mechanisms that interlink these activities. This approach is in compliance with the developing literature on business models, including Casadesus-Masanell and Ricart (2010), Chesbrough and Rosenbloom (2002) and Teece (2007).

This research chooses to adopt the conceptualization of activity systems as an important part of business model theory. Activity systems are perceived as a necessary tool in the process of developing performance measurements on the basis of business models and thereby strengthening its theoretical grounding. To provide a solid line of argument as to why the concept of business models and activity systems are interconnected, I will take a short detour to focus on the level of abstraction.

In order to establish a (managerial) overview, we as humans are forced to simplify an otherwise complex world (Cooper, 1992), which in line with Nielsen *et al.* (2017b) can be seen as a foundational aspect of management accounting. Through further reflections, it could be stated that simplification constitutes a vital mechanism in all business management in attempt to control resources and activities “from a distance” as well as to relocate management objects, such as reports, meetings and systems, within time and location (Nielsen *et al.*, 2017b).

In accordance with Figure 1-3 below, it is possible to define a range of abstraction levels. At the top are organizational metaphors and narratives with the highest level of abstraction, followed by the focal business representing the lowest level of abstraction. Between the two mentioned levels of abstraction, a range of different other levels exist and have been associated with different models and theories historically. On the top level (narratives), we have authors such as Morgan (2006), “Images of Organization”; Senge (2006), “The art and practice of the learning organization”; and Mouritsen *et al.* (2003), “Intellectual capital statements: the new guideline”.

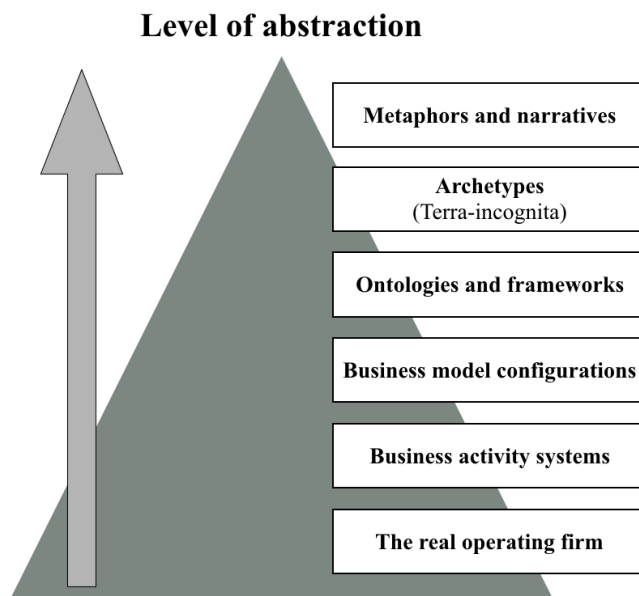


Figure 1-3. Business models at different levels of abstraction from “reality” Taran et al., (2016) inspired by Massa and Tucci (2013)

This research chooses to position itself in the framework of Massa and Tucci (2013), who distinguish between six levels of abstraction in the field of business models. According to Massa and Tucci (2013) Business model *narratives* and *archetypes* are positioned at the top level of the pyramid, while they are believed to represent higher levels of abstraction compared to ontologies and frameworks. While multiple frameworks exist e.g. Johnson *et al.* (2008) and Osterwalder and Pigneur (2010), these however fail to provide higher degrees of granularity besides the compositional parts of a business model. To advance the perception of business models further, we should therefore strive to unfold the notion business model configurations (taxonomies) (Nielsen *et al.*, 2017b; Taran *et al.*, 2016) (see also Gordijn *et al.*, 2005; Lambert, 2015) and subsequently activity systems as described by (see Zott *et al.* 2011). Contemplating these levels of abstraction and using them as individual stepping stones to reach the next level is crucial in order to ultimately reach “maximum” correlation at operational level.

These notions of abstraction lead to the identification of the second main theoretical platform for this dissertation: Representation Theory.

1.2.3. REPRESENTATION THEORY

Representation is an important aspect in our decision-making processes. Successfully navigating between different options and scenarios, requires our awareness and insights – namely “representations of reality”. While this can be seen as a general circumstance in life, it most certainly also applies to business administration. In order to make good decisions, decision-makers require precise representation of reality in the form of precise and factual information. Representation theory emphasizes this by underlining the need to form the best possible abstractions of reality, and thus lends its theoretical perspective to the main themes of this research namely: business models and comparability. It is worth noting that the purpose of this section is not to initiate a discussion of whether reality exists or not (in the following section I discuss the ontological grounding and epistemological position of this thesis).

As a point of departure for this section, (Cooper, 1992, pp. 183) argues that *“Boundedness, far from being a restriction, is a required stimulus for representation. As representations, techniques and artefacts are embodied (note, not just ‘enacted’) processes that remedy and compensate for the body’s deficiencies and, at the same time, extend, magnify and make more durable its power.”*

Within representations inherently lies the principle of economizing on calculability, which eventually becomes useful in the process of understanding and analyzing organizations in contrast to the conventional concepts of information (Schotter, 1981; Williamson, 1975). This does however not imply redundancy of the latter, but merely suggest that representation, here in the form of the business model, potentially adds valuable dimensions to e.g. an already existing decision support system.

Boulding (1956) is concerned with the construction of a body of systematic theoretical constructs, which can be applied to the discussion of the general relationship of the empirical world. In his seminal paper on general systems theory, he classifies systems according to nine levels, starting from the level of systems as static frameworks and ending at the level of transcendental systems. Just below this latter level, Boulding, (1956) argues, is the level of social organizations. However, aspects such as communication, interrelations, roles, and division of labour, immediately makes this level rather difficult to comprehend (Boulding, 1956, p. 205), which is why a simplification is considered essential. In synthesis, representation can effectively be achieved through notions on system structures, as it allows us to comprehend connectivity between objects. Consequently, inspired by Nielsen *et al.* (2014) and in line with (Bell and Soloman, 2002; Betz, 2002; Chaharbaghi *et al.*, 2003), this research argues that the business model can be perceived as a representation of the firm.

When studying organizations from a management-level perspective, which is typically associated with business model analysis and performance measurement, it is important to understand the inferences of a representation. Among the underlying mechanisms of representation are concerns of representational objectivity (or faithfulness), power and description versus transformation (Nielsen *et al.*, 2014). According to Cooper (1992, p. 271), representation becomes the conversion of power into information. In the light of a representation perspective, power would thus be concerned with convincing the rest of the organization that management is handling things in the best possible fashion and thereby aligning the organization with the management's plans. As the management's representations are spread within the organization they become 'more real', thus enhancing the power of management.

Following the notion as depicted by Nielsen *et al.* (2017b), the intersection between representation theory and business models, effectively becomes "*an art of modelling a prototype of the company*" in the attempt to project accurate images of reality. Perhaps rather philosophically, Cooper (1992) and Latour (1999) ask the question of whether the world outside is different from the one we have in here? Arguably a complex and relatively unanswerable question. In the eyes of Latour (1999) however, representation eventually morphs into reality as it is derived from objective observations. This can effectively have both positive and negative outcomes depending on the "technology" (e.g. a business model framework or other management tools) (Nielsen, 2014).

In this research, where the object in question is "the company", it is found useful to gravitate towards Cooper (1992) and his fundamental notions on controllability, which is arguably the essential motivation for representation modelling. Inspired by Zuboff (1988), Cooper (1992) derives three main concepts of controllability:

- Remote control
- Displacement
- Abbreviation

In essence, *remote control* explicitly refers to controllability of things from a distance and underlines the economy of convenience inherent to representation (Cooper, 1992). As Cooper (1992) further argues: "*one may not be able to move the mountain itself, but it is easy to move a model or a map of it*". Representation enables mobility as it facilitates initiatives to transform the outside (unknown) to the inside (known) – hence *displacement*. Parallel to this conception lies the principle of *abbreviation* as this should be perceived as the empowerment of remote control and displacement. Abbreviation purposely serves as a way to reduce detail level and simplify, by which things become more compact and controllable (Brooke, 2001; Cooper, 1992).

The inability to comprehend and represent a phenomenon objectively (because we are rationally bounded) implies the existence of what Wickham (2003) denotes a

representativeness heuristic, that is, a rule-of-thumb pertaining to the need for abbreviation. Acknowledging that abbreviation is a necessity does not, however, necessarily imply that the object under scrutiny (or evaluation, analysis) is therefore not understood properly (Cooper, 1992).

As a final remark in regards to this dissertation, I lean against the perspectives on knowledge resources provided by Mouritsen (2003) in which he perceives representation as a valuable tool for investigating a phenomenon, and thus a valuable frame of reference for studying the business model - hereunder its essential elements and fundamental mechanics.

1.3. PHILOSOPHY OF SCIENCE

In all research, the researcher faces the inescapable choice concerning ontology, epistemology and the underlying nature of inquiry (Martela, 2015). Although certain types of research favour certain methodological approaches, considerations as to ontology (nature of the world) and epistemology (the study of the nature of knowledge about the world) can largely be ascribed to the fundamental beliefs of the researcher. This research is no different, hence, I attempt to account for these considerations in this section. While each paper of this dissertation contains explicit research designs and methodological considerations, this section frames the overall philosophy of science underpinning the thesis. However, it is not my intention to undertake a broader philosophical discussion, but to disclose reflections in regard to this research.

The notion of ontology represents beliefs about reality and consequently raises questions of what truth is and whether or not this can be obtained; hence, it is our perception of “truth” that influences what we think we can know. We can assess the two extremes of ontology respectively: realism and relativism. Realism argues for the existence of one truth, which can supposedly be achieved through objective measures. Moreover, this truth, if discovered, can be generalized and applied to other settings. On the contrary, relativism does not assert the existence of one truth. Instead, relativism argues for the existence of multiple versions of reality. What is real depends on the meaning that researchers attach to truth. Furthermore, reality is assumed to be shaped by context and, thus, cannot be generalized but only applied in similar contexts.

I immediately find it difficult to subscribe to either one of these two extremes. These positions are made more complicated by choices of epistemology, as ontological beliefs dictate epistemological decisions. Realism links to objectivism, which calls for a so-called “etic” approach, where the researcher attempts to stay as far away from research as possible in order to get an objective measurement. In contrast, relativism links to constructivism, which prescribes an “emic” approach, where the researcher submerges into the research itself and strives to understand reality through interactions with people and environments. An often-used analogy describes the difference

between etic and emic approaches through the study of a fishbowl. The etic researcher exclusively observes the fishbowl from the outside, whereas the emic researcher aims to get inside the fishbowl to collect observations. Again, I find it hard to agree to either one – especially when considering the context and aims of this research.

This research hypothesizes that business models can be subject to more objective measurements, whereby more comparable bodies of knowledge can be built around them. While this is an ambitious aim, I also find it necessary to disclose my own position in which I view the research objective as rather idealistic. By “idealistic” I imply that business models, through abstraction (Zott *et al.*, 2011) and principles on representation (Cooper, 1992), can be subject to more precise and comparable measures, but not to the point of a definitive truth.

I perceive business models as mechanic, yet dynamic, structures, determined largely by a combination of universal laws of business and human behaviour. This is not to say that business models are simple, but rather that I believe they can be broken down into smaller components (value drivers), which are more simple to measure and understand in terms of individual characteristics as well as in the context of other components and the surrounding environment. Referring back to positions on ontology and epistemology, I do not believe business models can be objectively measured to the extent of which the full truth and complete predictability is achieved. Again, I do believe certain “laws” apply to business model functionality that implies predictable causes and effects, on a value driver level, can be identified. However, this identification requires the researcher to sort through different types of information, hence, some observations can be fairly objectively conducted, while others may be prone to subjective interpretation. These points inform my ontological and epistemological stance.

At this point, my aspiration towards a paradigm that reconciles the extremes of realism and relativism is perhaps no surprise. In this case, I gravitate towards “pragmatism”, prompted by the epistemological notion on fallibilism inspired by recent elaborations by Martela (2015). Originally coined by Charles Sanders Pierce (1839-1914), fallibilists subscribe to the idea knowledge is fundamentally imperfect (Pierce, 1956), hence, implying that knowledge we find true and useful today, may be insufficient and defective tomorrow due to new insights or/and contextual changes (Martela, 2015).

Table 1-1. A comparison of paradigms (Martela, 2015)

	Positivism	Critical realism	Constructivism	Pragmatism
Ontology	Realism	Realism	Constructivism	Experientialism

Epistemology	Correspondence	Interpretive realism	Interpretive realism	Fallibilistic
Aim	True and accurate theories	As accurate theories as possible	Understanding different perspective	Warranted guidance
Role of the researcher	Detached observer	Active interpreter	Active interpreter	Active interpreter
Standards for comparison	Correspondence with reality	Power to reveal underlying structures	No generally accepted standards	Capability for warranted guidance
Methods of science	Acontextual	Historically contextual	Historically contextual	Historically contextual

Through this worldview, I accentuate the insights of this dissertation as warranted assertions, which can provide new and helpful perspectives to researchers and practitioners. It should also be noted that these assertions are not seen as definitive, objective reflections of reality, but merely as a useful tool or guide proving its expediency in practice. The assertions in this dissertation may, therefore, not be successfully applied at any given time or/and in any context and that is acceptable. In line with Dewey (1938), Martela (2015) states: “*Warranted assertions are outcomes of inquiry that are so settled that we are ready to act upon them, yet remain always open to be changed in the future.*” In further response to this statement, Martela (2015) adds the importance of choosing credible instruments of inquiry, while refraining from advancing generalizable theories, and explains that this should not be viewed as a rationalization to compensate for weaknesses in the research design. Therefore, the papers in this dissertation individually elaborate on the methodologies adopted.

A further argument for leaning towards pragmatism has to do with ways of reasoning. As a pragmatist, the idea of value-free inquiry seems rather unattainable; I believe past practical experiences will inevitably impact pre-assumptions and conclusions. In correspondence with Dewey(1938) and Martela (2015), I subscribe to the conviction that hypotheses’ formulated for empirical testing cannot be exclusively deductively driven, nor can theory development materialize through pure inductive and value-free inquiry. According to Martela (2015), scientific inquiry is not detached from observation, but directed by the values of the researcher from the initial steps of the problematization. In this, the researcher is obliged to enter a discussion about which purposes are advanced and why, thus, dissolving the illusion of value-free science (Wicks and Freeman, 1998). From this perspective, the discussion of value-free inquiry can effectively be ended for good.

Pragmatism promotes and abductive reasoning by which the researcher attempts to advance the best explanation through a number of observations. However, “abduction” is not just something we do, rather, it is a consequential process (Locke *et al.*, 2008; Martela, 2015). Initially, abduction often emanates from the doubt and surprise of not knowing. Therefore, in order to successfully perform novel research, one must “disrupt the order” and thus resist the impulse of habitual thinking (Locke *et al.*, 2008; Martela, 2015).

The latter notion resonates well with this research. From the early crystallizations of the research objective, to the ongoing iterations within the development phase, this inquiry has been driven by abductively-based inferences. This will be further elaborated in the following sections and explicitly exemplified in section 1.5

1.4. METHODS

General reflections

In this section, I propose a series of steps in order to investigate the overarching research objective of this dissertation. To study the fields of business model configurations, it is necessary to apply a series of different research methods, both qualitative and quantitative.

As the papers in this dissertation apply different research methods to studying the fields of business models, including business model innovation, management accounting and intellectual capital, each paper describes the specific methodological choices and precise research methods applied. However, as the papers share a number of key attributes, objectives and characteristics, it is appropriate to discuss the methodological grounding for the dissertation as a whole.

As the article description below indicates, this dissertation involves mixed-methods research, applying both quantitative and qualitative methods. This means that the dissertation must include discussions of the potential problems of mixed-methods research.

According to Morgan and Smircich (1980), the prevailing dichotomy between quantitative and qualitative methods is a rough and oversimplified one. They argue for a more nuanced perspective towards this discussion and conclude that aspects, such as the underlying perception of the nature of knowledge, ontological assumptions and assumptions about human nature, must be taken into consideration.

Sale *et al.* (2002) argue that the paradigms upon which quantitative and qualitative methods respectively are rooted in different perspectives of reality (Burrell and Morgan, 1979) and thus constitute distinctive interpretations of the phenomenon in question. Consequently to this notion, purists would argue against mixing quantitative and qualitative research in concern to possible issues of validation and triangulation.

The quantitative-qualitative debate clearly revolves around ontological and epistemological key issues (Sale *et al.*, 2002). While some concerns are reasonable in regards to a mixed paradigm, Sale *et al.* (2002) also underline the potential value of this approach. In essence, the rationale is study dependent, hence the complexity and/or nature of some phenomena allows for conducting both quantitative and qualitative work simultaneously or sequentially in a single study or series of investigations (Sale *et al.*, 2002). This research leans against this perception, which will be explained and accounted for in the following sections of this chapter.

Structured literature reviews

This research uses structured literature reviews, adhering to the ten steps suggested by Massaro *et al.* (2016), to identify all known business model configurations and their appurtenant value drivers:

1. write a literature review protocol;
2. define the questions that the literature review is setting out to answer;
3. determine the type of studies and carry out a comprehensive literature search;
4. measure article impact;
5. define an analytical framework;
6. establish literature review reliability;
7. test literature review validity;
8. code data using the developed framework;
9. develop insights and critique through analysing the dataset; and
10. develop future research paths and questions.

The method is applied in chapter 2. of this dissertation.

Survey methodology

A relational database containing empirical examples of the identified business model was developed. In continuation of the database, a survey instrument was constructed by questions from which a specific business model configuration can be identified based on the answers given by companies on a strategic business unit level. In conjunction with the database, the survey instrument comprises is referred to as Business Model QUANT (BMQ). Survey methodology was thereby used to the extent of building and performing low-fidelity tests on the survey instrument.

Rapid prototyping

Rapid prototyping was utilized extensively throughout this research in building the BMQ software tool. Treading new paths on the continuous search for the right tool was challenging and, thus, resulted in a rather experimental approach. This I ascribe to two main aspects: firstly, from a pragmatist point, scientific inquiry can rarely be considered a linear process as it is more likely to evolve in an iterative manner back-and-forth between different parts. In addition to this notion lies the practical conditions for software development, which calls for quick iterations and low fidelity testing to avoid defective or redundant work and thus minimize resource expenditure.

Data

The data used in this research comprises both primary and secondary data. However, the use of primary data has predominantly occurred in the early phases for developing

the platform, whereas the later round of data collection, as depicted in chapters 4 and 5, have derived from secondary sources, such as annual reports, webpages and newspapers. The specific use and detailed description of data is discussed respectively the chapters 3 and 4 in this dissertation.

1.5. RESEARCH PROCESS AND SOFTWARE PLATFORM

As previously mentioned, a software system, Business Model Quant (BMQ), was developed in this research. Although the articles individually account for important steps in the research process, underlying considerations and activities provided a backdrop for the dissertation. Consequently, this section presents the genesis, composition and application of the BMW software and attempts to account for the underlying methods involved in the process. Emanating from a practical construct, the software development has followed a some-what traditional design-thinking protocol, hence, the process can be divided into multiple steps/iterations. With the intention to yield the best possible results, different methods have been applied accordingly to suit the objectives of each step in the development process. To simplify things, this research can be presented through three general phases – each constituted by several underlying steps (to be elaborated in the following sections):

1. Phase 1: Design

- *Literature review → General business model typology → Develop database → Coding value drivers → Prototyping questionnaire framework v1.0.*
-

2. Phase 2: Testing

- *Testing mapping tool v1.0 → Iteration: 1 → Testing mapping tool v2.0 → Iteration: 2 → Mapping tool v3.0.*
-

3. Phase 3: Data collection

- *Data collection 1 → Data collection 2 → Iteration no. 3 → Data collection 3 → Current version.*

While the general composition of the research structure was pre-determined, several changes were made during the process to accommodate obstacles and preliminary findings.

1.5.1. PHASE 1: DESIGN

Phase 1, comprises the initial considerations and conceptualization in regards to the research objective. Because of this, phase 1 comprises a multitude of larger and minor iterations, which for dissemination purposes have been compressed into five overall steps as illustrated in the figure below:

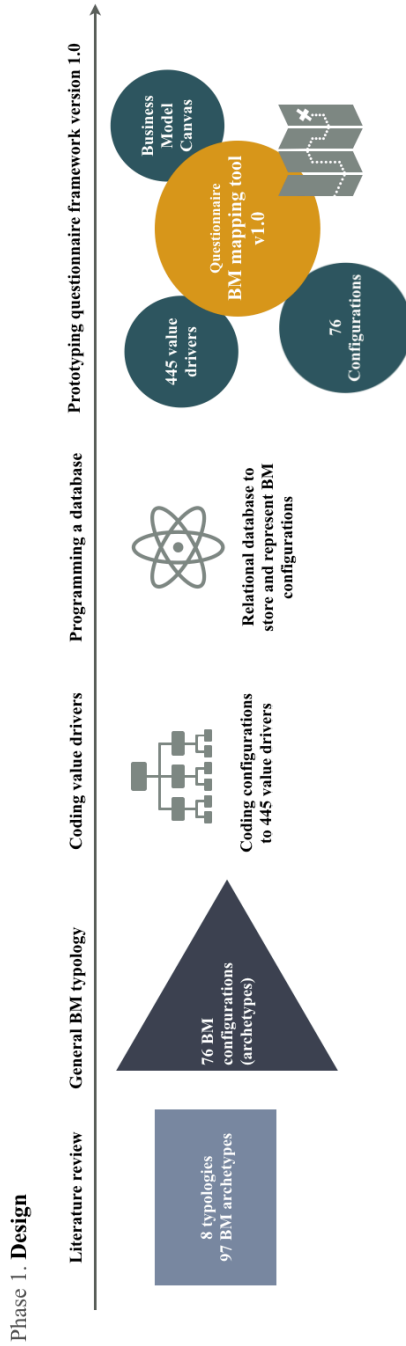


Figure 1-4. Research Phase 1: Design

The idea to build a software-based structure to capture and store data on business models was conceived relatively early in the process. So, with the ambition to develop more saturated and comparable datasets on business models, it seemed natural to introduce some form of questionnaire module, capable of accumulating company information relevant for conducting assessments on business models (Osterwalder, 2004). However, this was no straightforward task since the business model constitutes a complex, interlinked structure containing numerous variables. One overarching question hovered throughout this stage: is it possible to comprehensively frame a business model through a questionnaire-like structure in a meaningful way?

Turning attention towards comparable fields of research, such as psychology/personality studies, brought new insights on the extent to which this is possible, as well as sensible, to attempt a quantification of the business model. As personality traits and human archetypes have already been exhaustively studied in a quantitative manner over the course of several decades e.g. the scientific fields of marketing and psychology, I reason that companies can be studied in a similar fashion. Arguably, companies can be perceived as complex and diverse structures influenced by the context in which they reside, hence, this can be compared to the characteristics of human beings. In regard to this research, I therefore argue that “personality tests” can be applied to companies to identify business models.

Leaning towards Magretta's (2002) observation that “*Every viable organization is built on a sound business model, whether or not its managers conceive of what they do in those terms*”, this research perceives the business model as a universal concept from which all businesses can be studied. At its core, the business model can be said to answer existential questions for any business as it attempts to explain the underlying mechanics of value creation to the customer. Essentially, it provides a way to understand why a customer is ultimately willing to pay for a product (Osterwalder and Pigneur, 2010).

From a practical standpoint, the questionnaire intended to induce a valid and reliable data collection method with the potential to be applied across multiple industries, regardless the company type or size. Many considerations were initially made, particularly with regards to the actual content and construct of the questionnaire. To assist the process of moving forward, a set of primary specifications was formulated.

Table 1-2. Business Model QUANT system specifications

No.	BMQ Specifications
1	Provide a comprehensive and valid description of the business model
2	Intuitive regardless of respondents' position or educational background

- 3 Collect basic information of the company in question (e.g. name, size, product category, industry)
- 4 Scalable to handle larger amounts of data
- 5 Expandable structure to contain additional information, e.g. financial performance information

While some of the specifications no. 2, 4, and 5, were fairly simple to accommodate, no. 1 and 3 were more complex to define. In the latter case, and perhaps not surprisingly, the framing of the business model turned out to be far more complicated than initially thought. At this point, the novelty and “early stage” advancements of the business models concept became gradually more evident, while limited insights, to aid the process forward, appeared to exist.

However, by applying the BMC as the framework of choice, it was fairly easy to decide on the overall categories of the questionnaire, whereas things became murkier during the attempts to devise the questions. Again, and much in line with Fielt (2011; 2014), no tools or specific research seemed to exist in regards to this matter. In order to move forward, I decided to resort to the available research on business model typologies, in the hope that these would add more breadth and depth to the understanding of the concept. Typologies of business models can said to contain configurations of real-life successful business models, hence, they potentially represent valuable insight to business development (Pateli and Giaglis, 2004). However, before I start to detail how I used the typologies to “extend” the BMC, it is important to elaborate on the aspects of typologies and taxonomies within business models.

Towards a business model taxonomy

Since the early beginnings of business model research, several typologies have been published, of which the majority were published in the early 2000s. At this point in time, the business model concept as we know it today had just emerged in the wake of the dot.com era, accentuating new perceptions of business behaviours. Many new, as well as existing, business models were identified as a consequence of this development, eventually finding their way into classification schemes, which are commonly distinguished by typologies or taxonomies. In short, typologies are conceptually derived through qualitative deductive reasoning where few characteristics are considered (Bailey, 1994).

In contrast to typologies, taxonomies are categories usually defined on the basis of many characteristics empirically derived through a quantitative approach and reasoning by inference (Bailey, 1994). In all forms of scientific research, the classification of objects within a research domain constitutes a fundamental step

towards other research (Lambert, 2015). A good classification scheme forms the foundation for theory development (Bailey, 1994). As stated above, many scholars seemed to embrace this approach during the initial inception of business model research, while attempting to frame and theorize this new unknown territory through different classification schemes. Drawing on the distinction between typologies and taxonomies, these classification schemes should, according to Lambert (2015), be characterized as typologies of business models. However, as quickly as these typologies emerged, they disappeared. In recent years, few typologies have emerged and, perhaps more crucially, very small advancements have been added to the existing ones.

Another point worth mentioning is the inconsistency in the way in which these typologies have been developed as well as how they are represented (Fielt, 2014; Lambert, 2015). In this regard, Lambert (2015) and Groth and Nielsen (2015) further highlight the pronounced need to develop business model taxonomies to form the basis of generalizations and, thus, develop best-practice theories. Furthermore, both Lambert (2015) and Groth and Nielsen (2015) advocate for further large-scale studies leading to a potential taxonomy.

Prompted by this, I recognized the need to “extend” the BMC through the application of a business model typology. In this way, the BMa and its components (building blocks) would comprise the overall structure, while the typology would constitute the basis for the underlying questions associated to each building block. At best, the outcome would be two-fold: (1) improve the evaluation respondent inputs; and (2) assess the quality of the applied typology.

Through a literature review, I identified the following typologies, collectively comprising 97 configurations:

Table 1-3. Selected typologies

Author	Typology
Timmers (1998)	Internet business models
Rappa (2000)	Business models on the web
Weill and Vitale (2001)	Atomic (e-)business models
Afuah and Tucci (2001)	(Internet) business models (based on dominant revenue models)
Linder and Cantrell (2000)	Overview of operating business models

Chesbrough (2006)	Six types of business models
Osterwalder and Pigneur (2010)	Business model patterns
Johnson (2010)	Business model analogies

Although the selected typologies all center on the business model, they differ in terms of their focus and composition. Consequently, they appear to share both similar trades, as well as possess individual unique qualities. While some typologies exclusively relate to internet-based businesses (Rappa, 2001; Timmers, 1998), others attempt to explain more general and strategic configurations (Chesbrough, 2006; Osterwalder and Pigneur, 2010). In fact, each typology appears to have its own individual focus and scheme of classification, which potentially results in varying levels of generic qualities. In general, authors of business model typologies generally seem to have followed a more inductive approach towards classification, which could be attributed to the early stage of business model research at the time. So, while schemes of classification can be discussed, this research generally asserts that a governing framework is critical to ensure rigor when forming a generic business model typology. In this case, years of advancements in business model research have brought new opportunities in regards to frameworks, with a special emphasis on the BMC by Osterwalder and Pigneur (2010). While several, more or less known, business model frameworks have emerged over the years, there is a general gravitation towards the BMC as the framework for representing the business model and its components. Drawing on the BMC, this research attempts to re-enact previous developed typologies in today's business model frame.

The subsequent steps were conducted in order to transition the eight typologies into a generalized typology:

1. Configurations were assessed in terms of their empirical references for validation purposes.
2. All individual descriptions of business model configurations were "dissected" into the "primary information" and "secondary information", to uncover their key features. This procedure made it possible to frame the business model configurations in the BMC and thereby assess its general "fit" along with the primary building blocks. Choosing this form of representation allowed for a better evaluation and comparison between the configurations.

<p>Mass-customised commodity</p> <p>Linder & Cantrell (2000)</p>	<p>Primary</p> <p>Value proposition: Offer “have it your way” model options (customization) on top of competitive prices.</p> <p>Secondary</p> <p>Channels: Convenient buying and fast delivery to win in commodity markets.</p> <p>Key activities: To make the numbers work, push assets out, inventory turns up, and make processes more direct (vertical integration).</p>	<p>Reference case</p> <p>Dell</p>
--	--	-----------------------------------

Figure 1-5. Identification of primary and secondary information of business model configurations

3. In conjunction with five other researchers, the configurations were discussed and sorted; some were eventually merged and other were discarded altogether.

Following these steps I ended up with a typology of 76 business model configurations depicted organized in accordance to the BMC framework. While this version of the typology was further refined later in the research process, it acted as a starting point for the development of a questionnaire. Although the configurations were evaluated throughout, the level of assessment did not go beyond the original description, thus, I anticipated the need for additional revisions further into the process.

Coding value drivers

In the initial effort to transform the typology into a questionnaire, it became clear that additional measures were necessary to extract and convert information from each configuration. Although the typology immediately brought more depth to the composition of the questions, it was still found it difficult to assess whether full (as possible) coverage was achieved in proportion to the individual building blocks.

This concern spawned the idea of “value drivers”, which essentially describes the individual components of a business model – or in other words, the contributing factors that enable a business model in terms of value proposition, value capture and value delivery. Originally found within the strategic management field, the term value driver has been used to identify several factors, such as activities, competences, attributes and relationships, all of which are critical to achieve and sustain the competitive advantage of an organization (Amit and Zott, 2001; Zott *et al.*, 2011). In parallel, this same term has been used to address different factors that must be measured in order to understand value creation (McNair *et al.*, 2001), such as knowledge, relations, technology, processes (for example Beattie and Smith, 2013; Ulf Johanson *et al.*, 2001), fees and pricing mechanisms (for example Isidro and Grilo, 2012). Reflecting on these notions, it seemed natural to transfer the term value driver

onto the concept of the business model in an attempt to describe its compositional factors.

In practice, I coded the relating descriptions of all configurations in the derived typology accordingly to the nine building block of the BMC. In addition to this, I advanced the previous distinctions of primary and secondary information in the configuration descriptions by classifying this according to the relevant building blocks.

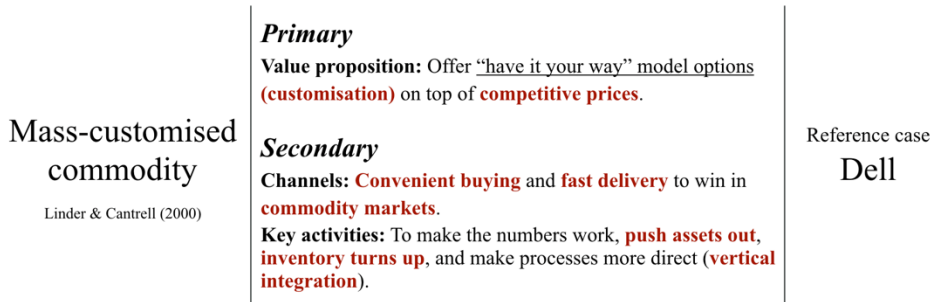


Figure 1-6. Coding value drivers of business model configurations

Following the above illustrated procedure across all 76 configurations, a complete list of 445 value drivers sorted/linked to each building block of the BMC as illustrated in figure 1-7.

Name	Building Blocks	Last Editor	Usage	Last Updated
24 hour availability	Value Proposition	Peter	0	2015-01-02 21:53:11
add on product or service	Value Proposition	None	2	2015-12-28 09:12:52
added value	Value Proposition	Peter	2	2015-06-08 13:38:45
additional product or service	Value Proposition	None	0	2015-12-28 09:12:52
advertisers	Customer Segments	None	0	2015-12-28 09:12:52
advertising	Revenue Streams	None	0	2015-12-28 09:12:52
advertising space	Key Resources	None	0	2015-12-28 09:12:52
affordability	Value Proposition	None	0	2015-12-28 09:12:52

Name	Building Blocks
24 hour availability	Value Proposition
add on product or service	Value Proposition
added value	Value Proposition
additional product or service	Value Proposition
advertisers	Customer Segments
advertising	Revenue Streams
advertising space	Key Resources
affordability	Value Proposition

Figure 1-7. Example of value drivers from the BMQ system

Although not seen as definitive, the list represented an extensive range of important variables for developing a comprehensive questionnaire.

Programming a database

At this point in time and as a forerunner for the next step, the importance of utilizing software was highlighted. Although this was an initial consideration, the gradual build-up of data confirmed the need for a more systematic structure to manage the data sets. Two primary aspects were emphasized, namely:

1. The option to quickly access and assess information on configurations and value drivers and;
2. the prospect of accumulating and adding more information and data over time.

So, while a multitude of pre-programmed questionnaire modules and databases exist, no solution seemed to fully meet our data collection, management and analysis needs. The individual modules, that is, the questionnaire module and the database, were considered simple structures so I identified several viable solutions. However, when adding the requirements concerning the interlinkage between the modules, issues of compatibility arose related to different coding schemes. With support from

programmers, various constellations were evaluated, but none of these met all criteria. As a consequence, I inferred that it was vital to develop a specific software to meet the objectives of collecting larger amounts of data, especially as manual handling was not a long-term solution. Overall specifications were thereby defined, namely:

1. *Multi-layer data*
 - a. The software should be able to store data on multiple levels e.g. Overall categories → configurations → value drivers. Additional types/categories of data can be created seamlessly alongside existing information in the database.
2. *Relational*
 - a. The software should provide the opportunity to freely relate information in the database without reconfiguration or reprogramming of the existing structures.
3. *Flexible*
 - a. Programming had to be modular/flexible, so eventual changes in the information and the relations could be made with minimum effort and maximum tracking. The latter refers to the “strings” of relational information and the degree to which the transparency will ensure that eventual changes are made throughout. This ensures that all relevant information in the database can be current in case of e.g. two value drivers are merged.

Supported by professional programmers, a software was built according to the above-listed specifications, which should be viewed as a very general feature specification. While the actual development process entailed more detailed specification lists followed by numerous reconfigurations, the overall predefined specifications were all successfully implemented. It should be noted, however, that building the software to full functionality was not a “one-stop job”. Though most of the work was carried out relatively early in this research project, the development process was undertaken concurrent to the research as adjustments had to be made throughout.

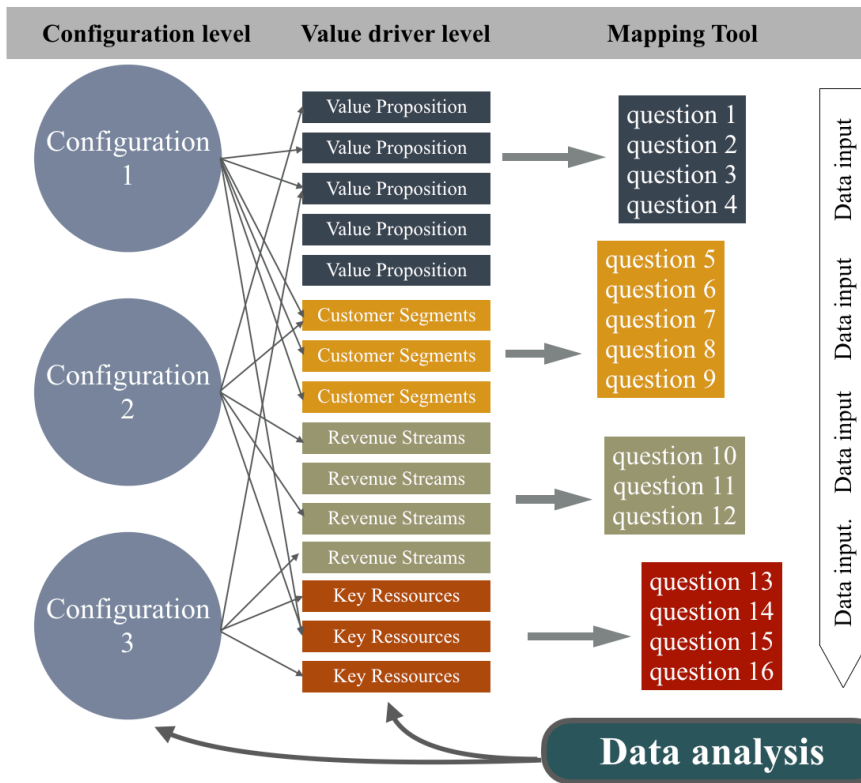


Figure 1-8. Business Model QUANT System structure

Testing Business Model Mapping Tool v1.0

As a result of the work presented above, a first version (v1.0) of the questionnaire was formulated. Four researchers supported the process in terms of content definition, question articulation, scale application, as well as general sensemaking. The constellation of multiple researchers was considered to yield the best results during this step, since certain expertise was required, to ensure consistency in the interpretation. However, contemplating the sheer complexity of framing business models in a questionnaire framework, v1.0 was perceived as an early stage prototype likely to undergo several iterations. Accepting this from the outset, several aspects had to be tested in order to test the robustness of the questionnaire. This is further elaborated in the following section on the primary test phase of this research.

1.5.2. PHASE 2: TESTING

This phase comprised multiple iterations primarily driven by different user tests as summarized in figure 1-9:

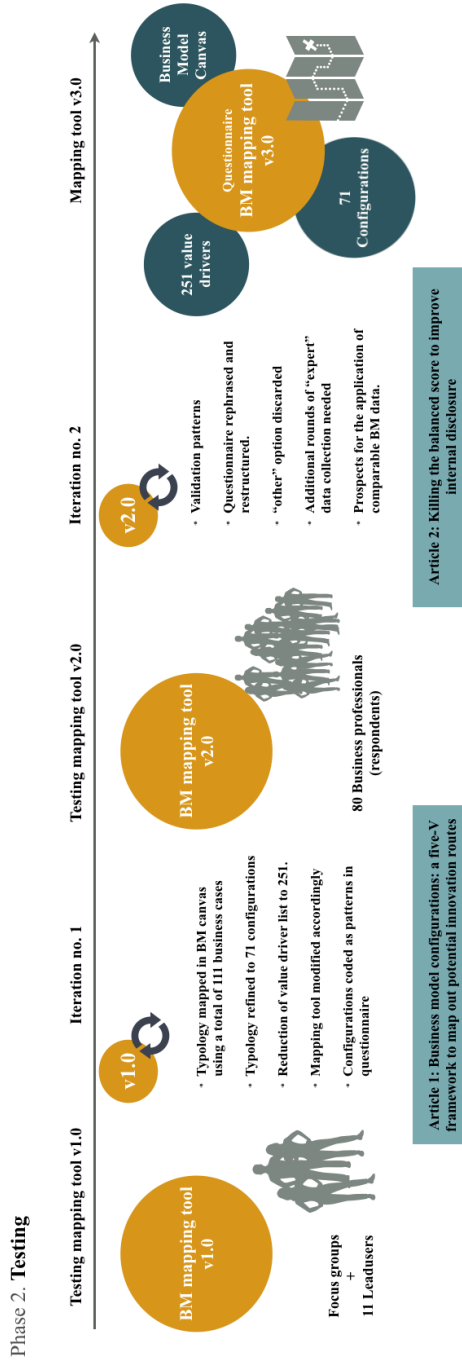


Figure 1-9. Research Phase 2: Testing

Testing mapping tool v1.0

At this point, the software was yet to undergo the test of “reality”. The dominant concerns in this regard were primarily directed towards the questionnaire. So, before taking on larger groups of respondents, I staged what could be referred to as “test sessions” comprising focus groups and lead users, including:

1. *Two focus group sessions* consisting of three to four people were assembled with the objective to assess the questionnaire in terms of composition, formulation and the applied measurements. All participants in this exercise were academics with a background in research and familiar with the business model concept. Participants were presented with a case description of the Danish company Årstiderne and given time to get study this. In unison, the participants attempted to complete the questionnaire on behalf of Årstiderne. Notes were taken parallel to this process to capture flaws and limitations.
2. *Lead users* comprising a mix of 11 professional business managers from 11 different companies were included to conduct further testing. Through the previous process, revisions had already been made to the questionnaire, but there were still concerns as to its intelligibility. Since scalability necessitates a broad application, the questionnaire had to be accessible to most professionals – not just academics. Thus, refraining from using excessive “expert language” in order to create a more common questionnaire. Each lead user was asked to complete the questionnaire on behalf of their respective company, while simultaneously being monitored to support and capture issues during the process.

Iteration 1

The outcomes from the above-described focus groups turned out to be fruitful in terms of troubleshooting. Although issues were generally anticipated, the extent of these issues were not. So, while several questions were, as expected, forced to undergo some form of reformulation, a much more comprehensive line of adjustments concerning the core content of the questionnaire had to be made.

Despite the attempt to use a widespread set of value drivers to devise questions, especially the choice questions, these were repeatedly found to be deficient. Two issues seemed to be prevalent: certain choices/options were altogether missing or (and perhaps more problematic) certain choices/options were subject to misinterpretation and/or overlap. During the numerous test sessions, it gradually became clear that the developed typology and the appertaining value drivers perhaps failed to offer the precision required. While they arguably contributed valuable depth to the questionnaire, they appeared to suffer from inconsistencies. A strategy to address this issue was consequently undertaken, whereby I was eventually forced to go back to the basis of the typology. The following successive steps were conducted:

1. A group of four researchers mapped each individual configuration in the BMC while drawing on relevant empirical data comprising relevant theory and secondary company information – adding up to a total number of 111 cases. This ultimately allowed for a much greater understanding of the configurations; the exercise resulted in more detailed descriptions and reduction from 76 to 71 configurations.
2. Following the improved typology, I revisited the value drivers. Since each business model configuration was now mapped in the BMC, it was a simple task to transfer these into the database, which had to undergo minor adjustments. In this process I decided on a different approach when adding the value drivers. This time the value drivers were added continuously in consolidation with a “growing” master list. In principle this means that each value driver has been cross-checked and assessed to fully understand its properties to justify its inclusion in the list and avoid overlaps. The main implications from this approach have thus been a reduced list of value drivers, while simultaneously adding both some new and redefined ones. Ultimately the list of value drivers was reduced from 445 to 251.
3. The questionnaire was modified to v2.0 according to the revised typology and value drivers.
4. As a result of this process, the first article of this dissertation was published: *‘Business model configurations: a five V framework to map out potential innovation routes’* (See chapter 2).
5. In preparation for the next round of testing, I decided to further advance the link between the questionnaire module and the database. As the ability to automatically assess business models is the longer-term goal, I thereby also imply identification of business model configurations from respondent answers. Much similar to the process of personality testing, where complex structures (humans) can be generically framed, I hypothesized that a similar approach could be translated into “business personality” through the lens of the business model. Thus, under the assumption that the business model(s) of most companies could be identified in our typology via the questionnaire, I set out to develop answer patterns for all the business model configurations (see figure 1-10). Intentionally, this would allow us to pair respondent answers with the patterns and thereby identify the given combination of business model configurations within the respondent company.

	A	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
		c3 - Content	c4 - Information	c5 - Price	c6 - Multi-sided	c7 - Value chain	c8 - Value chain	c9 - Value bundle	c10 - Sellin	c11 - Full service	c12 - Inco	c13 - Mass custo	c14 - No frills	c15 - Round up	c16 - De facto	c17 - Experience	c18 - Trust	c19 - Trust
1	var	Pattern1	Pattern1	Pattern1	Pattern1	Pattern1	Pattern1	Pattern1	Pattern1	Pattern1	Pattern1	Pattern1	Pattern1	Pattern1	Pattern1	Pattern1	Pattern1	Pattern1
2																		
3																		
4																		
5	Var_1																	
6	Var_2																	
7																		
8	Var_3																	
9	Var_3_1	N	Y/N	Y/N	Y/N	N	Y/N	N	Y/N	Y/N	N	N	Y	Y/N	N	N	N	N
10	Var_3_2	Y/N	Y	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y	Y	N	Y/N	Y	Y	Y	Y
11	Var_3_3	N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N
12	Var_3_4	N	Y	N	Y	Y	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y	Y/N	Y/N	Y/N	Y/N
13	Var_3_5	N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N
14	Var_3_6	Y	Y	Y	Y/N	Y	Y/N	Y	Y	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N
15	Var_3_7	N	Y/N	Y	Y/N	Y/N	Y/N	Y	Y/N	Y	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N
16																		
17	Var_4																	
18	Var_4_1	X									X				X		X	
19	Var_4_2	X	X			X	X	X						X			X	
20	Var_4_3																	
21	Var_4_4		X						X		X					X		
22	Var_4_5																	
23	Var_4_6		X	X				X	X		X			X			X	
24	Var_4_7	X										X						
25	Var_4_8																	
26	Var_4_9	X	X	X				X										
27	Var_4_10																X	
28	Var_4_11	X	X	X		X	X		X								X	
29	Var_4_12		X	X	X	X	X		X					X				
30	Var_4_13				X												X	
31																		
32	Var_5																	
33	Var_5_1																	
34	Var_5_2	5-7	1-7	1-7	5-7	1-7	1-7	1-7	1-7	1-7		1-7	5-7	5-7	1-7	1-7	1-7	1-
35	Var_5_3	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	5-7	1-7	1-
36	Var_5_4	1-4	1-7	5-7	1-7	5-7	1-7	5-7	1-7	1-7		1-7	1-7	5-7	1-7	1-7	1-7	1-
37	Var_5_5	1-4	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-
38	Var_5_6	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7		1-7	1-7	1-7	5-7	1-7	1-7	1-
39	Var_5_7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-
40	Var_5_8	5-7	1-7	1-7	1-7	5-7	1-7	1-7	1-7	1-7		5-7	1-7	5-7	5-7	1-7	1-7	1-
41																		

Figure 1-10. Example of value driver patterns

While the prospect of easy configuration identification spurred some interesting outlooks of a more practical nature, the immediate agenda was however to ensure that knowledge generated from the questionnaire could be fed back into the database and pave the way for an eventual taxonomy. In this case, the identified patterns would purposely constitute “anchor points” in each set of respondent answers to which the remaining answers could be compared. Predictably, in doing so, it would become possible to not only add information but also to evaluate the accuracy of the configurations. However, this would eventually depend on a considerable amount of data points.

Patterns were initially thought to be fairly complex as it assumed that each pattern would be composed by numerous answers. However, this turned out not to be the case; the identification, on the contrary, was relatively simple – so simple in fact, that configurations could typically be identified based on three to five questions. As shown in figure 1-10, the answer patterns were built in a low fidelity excel version with the intention to later code them into the software. This would ensure quick manual testing without running the risk of programming excess software functionality.

Testing Business Model Mapping Tool v2.0

With an improved version of the mapping tool, it was decided to run an experiment comprising a larger group of relevant respondents entrusted to complete the questionnaire without any supervision. All respondents were able to access the questionnaire via a link, whereby all data were uniformly collected.

The purpose of this test was, once again, to identify flaws and shortcomings, while simultaneously assessing the capabilities of the generated patterns. In addition, I had a concurrent wish to attempt some initial statistical analysis. However, limited expectations were held. Especially given the low number of respondents and the high number of variables.

In the attempts to approach the desired respondent profile, a selected group of 80 business professionals were assembled. Although representing a relatively heterogenous group in terms of company, background and position, they all shared key characteristics concerning the affiliation to a strategic business unit (SBU) on some form of executive level. While an executive position was not (and should never be), a requisite in regard to accessing the questionnaire, it was reasoned that a higher hierarchical level of involvement would accumulate to a more comprehensive all-round knowledge of the company in question.

Iteration no. 2

After concluding another round of data collection, a qualitative assessment was made whereby the following items were identified:

1. Some questions continuously appeared to be inadequately phrased or/and formulated. Although not completely mistaken, respondent answers eventually indicated that some questions were subject to misunderstandings. Issues identified in this matter were subsequently addressed.
2. Related to the above, it was noticed that the answer option “other” in several of the multiple-choice questions caused more confusion than it generated insight. Originally added during one of the early iterations, the “other” option eventually appeared to constitute an “easy way out” to answer the more complex questions. Consequently, it was decided reduce the usage of this option, as it was deemed to cause more confusions than insights.
3. The developed patterns were tested manually as a forerunner for automatic identification of business models configurations. The test quickly identified the “immaturity” of the questionnaire as the extent of uncertainty made it difficult to conclusively make the correct links between respondent answers and the typology. Although the procedure of linking in itself turned out to be possible,

the reliability in the data prompted a conclusion to postpone the objective of automatic identification. However, the patterns had played another important role as they help to validate the questionnaire's ability to frame each configuration. Although originally derived from the configurations, the previous iterations proved to have skewed some of questions. This was subsequently accounted for.

1.5.3. PHASE 3: DATA COLLECTION

The final phase revolves primarily around what could be termed "data collection". Even though data had already been collected, this had solely been used for testing purposes. At this stage, data collection was initiated not only for testing, but also in the hopes of gradually building knowledge on the prospects of business model comparability.

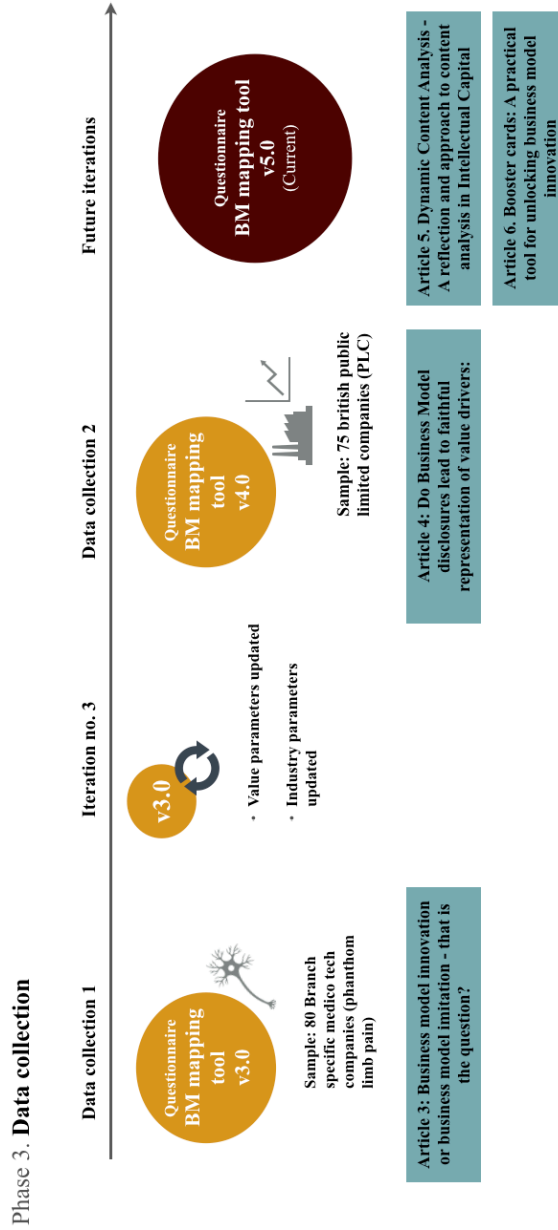


Figure 1-11. Research Phase 3: Data collection

Although this constitutes a great deal of effort in terms of the total amount of time spent on this research project, I will not dwell too much on this, as each round of data collection has been elaborated in the respective papers of this dissertation.

In terms of iterations, only one was made, which resulted in two noteworthy changes:

1. Questions were added to better determine the specific industry of the respondent.
2. A decision was made to refashion the way in which the questionnaire gathered information on value creation. The basis of these questions had, up until this point, been dictated by the business model literature and, perhaps somewhat counter intuitive, this did not provide a sufficient foundation of inquiry. A solution to this issue was found in marketing research where notions on customer value have been investigated in greater depth. In this literature, I found the “value pyramid”, which identified basic values perceivable to customers. This research gravitates towards the version “*30 elements of value*” as depicted by Almquist *et al.* (2016). Convinced that this representation would provide more depth and consistency, I decided to implement this representation into the questionnaire.
3. This section has described the development of this research and offers a starting point to transition into the respective papers of this dissertation.

CHAPTER 2. BUSINESS MODEL CONFIGURATIONS: A FIVE V FRAMEWORK TO MAP OUT POTENTIAL INNOVATION ROUTES¹

NOTE: Chapter has been removed from this version due to copyrights of the publisher. The chapter can be retrieved from source listed below.

¹ This chapter is co-authored by Peter Thomsen, Yariv Taran, Christian Nielsen, Marco Montemari, and Fransesco Paolone. The chapter is published in European Journal of Innovation Management (2016), Vol 19, No. 4, pp. 492-527.

CHAPTER 3. KILLING THE BALANCED SCORECARD TO IMPROVE INTERNAL DISCLOSURE²

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² The chapter is co-authored by Peter Thomsen, Christian Nielsen, and Morten Lund. The chapter is published in *Journal of Intellectual Capital* (2017), Vol 18, No. 1, pp. 45-62.

CHAPTER 4. BUSINESS MODEL INNOVATION OR BUSINESS MODEL IMITATION – THAT IS THE QUESTION³

The chapter explores the phenomenon of business model imitation and sheds light on its relation to business model innovation. The analysis focuses on similarities and deviations of business model configurations among 80 companies operating in the Phantom Limb Pain (PLP) related industry. Employing a questionnaire-based mapping tool, companies within the PLP industry are shown to apply relatively similar business model configurations. When the analysis is kept to the industry sub-group level, a few central business model configurations are adopted regardless of contingent factors. Our results indicate that imitation practices take place not only in relation to strategy, product or technology dimensions, but also in relation to applied business model configurations. Further, business model imitation practices pose different challenges compared to other forms of imitation, such as product imitation, particularly within the configuration context. Given the complex nature of business model imitation, it may be difficult for companies to observe whether they are unconsciously imitating other companies' business model configurations. This inability to distinguish between business model imitation or differentiation, within the context of business model innovation, results in firms' concentration around a few business model configurations, which may lead to more hypercompetitive industrial environments.

³ The chapter is co-authored by Peter Thomsen, Christian Nielsen, Yariv Taran, Marco Montemari, Stefan Schaper, and Jesper Sort. The chapter is a revised version of a paper which was presented in 2017 at the Business Model Conference in Venice, Italy.

4.1. INTRODUCTION

Do companies make full use of their competitive opportunities? Or are important factors and immediate advantages overlooked? Navigating the competitive landscape is an everyday activity of most businesses – an activity that requires timely assessments and managerial initiatives to secure competitive positioning in the market place. For many years, researchers have strived to frame the dimensions of competition to understand key factors under given market conditions (Grant, 1991; Porter, 1985; Wernerfelt, 1984). Hence, modes of innovation have also been explored and developed extensively to provide better insights into how businesses can remain competitive (Bossink, 2002; Kranich and Wald, 2017; Robbins and O’Gorman, 2015).

Crucial to the success of innovation, though, is not just the actual invention process, but also the successful commercialization of the new product, technology or value proposition. Within the Value Creation-Value Capture affiliation, the Business Model (business model) is designed in a unique way for capturing and delivering the created value (see Chesbrough and Rosenbloom, 2002; Sorescu, 2017). Business model patterns, or configurations, illustrate that there are many different ways of organizing and constructing the business model of a given company for seeking differentiation (see Gassmann *et al.*, 2014; Taran *et al.*, 2016). Therefore, the question is: To what extent are companies experimenting with new ways to organize or innovate their business model?

Business model innovation has been analysed from many different angles (Wirtz *et al.*, 2016), including: types of innovation (Keeley *et al.*, 2013; Taran *et al.*, 2015); business model innovation processes (Amit and Zott, 2012; Kaulio *et al.*, 2017; Yang *et al.*, 2014); enablers and barriers to business model innovation (Giesen *et al.*, 2010; Sosna *et al.*, 2010; Van Der Meer, 2007); and the performance effects of business model innovation (Nielsen and Lund, 2018; Zott *et al.*, 2011). Yet, the discussion around business model imitation, and especially its relations to business model innovation, is currently missing.

Imitative strategies and practices can come in many forms and concern different issues (see Barreto and Baden-Fuller, 2006), such as diversification decisions (Fliegstein, 1991), corporate acquisition choices (Haunschild, 1993), entry into new markets (Haveman, 1993), market position decisions (Greve, 1998), plant location decisions (Henisz and Delios, 2001), implementation of new organizational forms (Lee and Pennings, 2002), internal knowledge in the industry (Malerba and Orsenigo, 1997), entry timing (Golder and Tellis, 1993), and adaptation of existing or newly introduced technologies (Jovanovic and MacDonald, 1994). Hence, for many businesses, imitation seems like the safe approach, that is, it is better to be a fast second, rather than a first mover.

Imitating other organizations may be attractive, for example, in reducing innovation-related risks (Head *et al.*, 2002), avoiding falling behind rivals (Garcia-Pont and Nohria, 2002), facing environmental uncertainty (Lieberman and Asaba, 2006), and preserving competitive status quo (Chen and MacMillan, 1992). On the downside, imitation may potentially lead to more intensive competition and, over time, a greater risk of disruption. Although the literature and practices of imitative strategies are well documented (see Barreto and Baden-Fuller, 2006), there is still a gap in understanding what business model imitation means, and what the implications of applying such a strategy may be.

The main purpose of this study is to explore the phenomenon of business model imitation and to shed light on its relation to business model innovation. This may help to clarify the extent to which companies experiment with different business model configurations in order to achieve differentiation – beyond product/process/service differentiation – and whether they make proper use of the business model innovation space available to them (Johnson, 2010). In order to achieve this research objective, we analyse the similarities and deviations of business model configurations of companies across three industry sub-groups of the Phantom Limb Pain (PLP) treatment industry. This analysis works to understand if, and to what extent, the business model configurations of the companies are differentiated from each other.

The remainder of the paper is structured as follows: Section 4.2 is devoted to providing a theoretical background on business models, namely, business model innovation and imitation. Section 4.3 provides an overview of the empirical foundation of this article. Section 4.4 presents the research design and the results of the study. Section 4.5 discusses the findings drawn from the data analysis and concludes the paper by highlighting its main contributions and suggesting areas for further research.

4.2. THEORETICAL BACKGROUND

4.2.1. BUSINESS MODEL CONFIGURATIONS

For any company or organization, it is important to be aware of the business model being applied because the business model is the platform for executing the corporate strategy (Nielsen and Montemari, 2012). Therefore, a poorly configured business model is likely to hinder a proper implementation of the strategy, thus decreasing the level of performance. Different business models embed different value creation logics and, as such, require different sets of value drivers to be activated. A value driver refers to any factor able to influence the total value created by a company, that is, a key activity, resource, attribute, or relationship that is considered critical for the success of an organization and is perceived to be relevant by managers (Ferreira and Otley, 2009). Thus, value drivers are basic elements that provide a company with its competitive positioning in the marketplace, given that they represent a source of

differentiation from competitors and provide the business model with distinguishable traits (see Amit and Zott, 2001).

Consistent with these notions, business models are now increasingly being used as a basis for company classification to provide an alternative perspective from which to analyse and understand the patterns of development within an industry or a group of companies (Nosella *et al.*, 2005; Lambert and Davidson, 2013).

For the purpose of classifying companies according to their business models, the concept of business model configurations is particularly suitable. Gassmann *et al.* (2014) and Taran *et al.* (2016) argue that business model configurations (or patterns as they are also denoted) are distinct recipes of doing business that exemplify how the company creates, delivers and captures value.

These business model configurations have the advantage that they can inspire other companies to alternative ways of designing their value creation, value delivery and value capture. To exemplify this concept, in the business model configuration called “channel maximization” (Linder and Cantrell, 2000), the offering is distributed through as many channels as possible in order to create a broad distribution of the product. Prominent examples of companies using this business model configuration are Coca Cola, Nestlé and Budweiser.

Thus, business model configurations guide the identification and the analysis of the value drivers of a given company (Montemari and Chiucchi, 2017), helping to clarify how it competes in the market. The most complete business model configuration approaches, to date, seem to be those of Gassmann *et al.* (2014) and Taran *et al.* (2016) who analyse 55 and 71 business model configurations, respectively.

In particular, Taran *et al.* (2016) develop a framework that aims to facilitate companies in redesigning, selecting and implementing new business model configuration possibilities. This framework includes a comprehensive set of business model configurations classified according to five categories based on the type of value driver of the business model. These five types are:

- Value Proposition: embeds the features of a company’s offering that can satisfy customers’ needs and, therefore, the features that customers are willing to pay for (for example, customization, design, brand status, reliability);
- Value Segment: the segment of customers that a company targets. It includes the type of relationships that a company establishes with its customers (for example, lock-in, co-creation);
- Value Configuration: includes the mix of key resources needed and the key activities performed to create the value proposition, as well as the channels

used to deliver the value proposition to the target segment and the costs that a company incurs to configure and deliver that intent value;

- Value Network: includes the network of partners who can cooperate with a company with the goal of achieving mutual benefits (risk reduction, cost reduction, accessing a particular customer segment, accessing a new key resource);
- Value Capture: describes how much customers pay to obtain the value proposition, that is, the share of the value created that a company can capture. It also includes the different means that a company can use to capture value (for example, commission, leasing, subscription).

The framework assumes that every real-life company is a combination of different business model configurations. For instance, Dell presents a “mass-customized commodity” in the value proposition; “disintermediation” in the value configuration, with a “have it your way” value proposition delivered to the customers by cutting out intermediaries; a combination of “long tail” and “upfront payments” in the value capture because the company sells a wide range of customized products in low quantities and has customers pay faster than the time it takes to pay suppliers for the purchased goods; a predominant “outside-in” value network, as it gathers competences and electronic components from external parties; and an access to “breakthrough markets” in the value segment by using a novel value configuration model.

4.2.2. BUSINESS MODEL IMITATION AND BUSINESS MODEL INNOVATION

While the business model innovation discourse has been extensively investigated (Bucherer *et al.*, 2012; Foss and Saebi, 2017; Kaulio *et al.*, 2017; Schneckenberg *et al.*, 2017), the phenomenon of business model imitation remains unexplored. Lieberman and Asaba (2006) provide a framework for explaining business imitations on varying levels, such as product imitation, process imitation, managerial approaches or organizational forms. They argue that business imitations can be organized under two broad categories, namely: information-based theories and rivalry-based theories. Information-based theories suggest that companies tend to imitate others due to the presence of superior information. In this way, the imitating entity learns by drawing conclusions from the behaviours and successes of others. On the other hand, rivalry-based theories suggest that imitation activities are initiated in order to maintain parity or limited rivalry. Here, imitation is looked at as a “response designed to mitigate competitive rivalry or risk” (Lieberman and Asaba, 2006, p. 374).

From a business model perspective, Teece (2010) emphasizes the importance of designing not only successful, but also hard-to-imitate business models. He argues that replicating a successful business model may seem an easy task to perform, at a superficial level. An example of this would be other companies in the personal

computer industry copying Dell's disintermediation strategy in the mid-1990s. However, two barriers may occur when a company tries to copy a competitor's business model. First, the actual implementation of the imitation process may require resources, assets and competencies that are difficult (or impossible) to replicate or to obtain on the market. Second, it may be difficult to identify the precise features of the business model that need to be imitated and how to implement them.

Along these lines, Casadesus-Masanell and Zhu (2013) maintain that new entrants must reflect strategically when adopting a new business model, either revealing it to incumbents and running the risk of being imitated, or, competing through an established business model in that industry. Their findings show that if the new business model is revealed, incumbents can react by replicating the entrant's business model *tout court* or by adopting a hybrid business model, containing a mix of new elements from the entrant's business model and elements from the original model. This incumbent reaction can also lead the entrant to disappear in a relatively short time. Even though continuing to compete through established business models might not be beneficial for overall wealth creation in society, it could be beneficial for new entrants.

Drawing on previous work (Garcia and Calantone, 2002; Rogers, 2003), it is possible to link the concepts of business model imitation and business model innovation through degrees of newness. There are three categories of newness:

- **New to the world:** this category includes radical innovations at a magnitude that creates marketing and technological discontinuities, both at a macro and micro level, resulting in a new market infrastructure (O'Connor, 1998). Given the first-mover initiative and the level of newness, no business model imitation activities are present;
- **New to the industry:** this form of innovation takes place when the firm is the first to adopt a certain innovation in its own industry, but not necessarily new to the world in general. Here, any combination of marketing and/or technological discontinuity is possible, such as the creation of a new product line, extension of an existing line with new technologies, or entry into new markets using existing technologies. At this level, an increasing (but still limited) amount of business model imitation is taking place, such as the implementation of low-cost strategies in the airline industry;
- **New to the company:** this category involves, in most cases, incremental innovations that can be radical innovations to a company. Many such initiatives concern improvements or refinements of existing or new value propositions, processes and markets (Garcia and Calantone, 2002). Although new to the company, these innovations have already been implemented by other firms (Song and Montoya-weiss, 1998). Therefore, in this level, the degree of business model imitation is considered quite high.

This classification scheme shows that business model innovation and business model imitation are intertwined concepts built into one another. The lower the degree of business model newness, the higher the degree of business model imitation, and vice versa. Imitative practices are innovation activities that do not take place proactively but, rather, reactively. As such, the closer a company gets to “new to the company” innovation activities, the more reactive and more imitative the approach to business model innovation becomes. Similarly, the closer a company gets into the “new to the world” innovations, the more proactive and less imitative the approach to business model innovation becomes.

4.3. METHOD

4.3.1. RESEARCH CONTEXT

In this paper, we used specific criteria to select an appropriate empirical setting . Following Yin (2009, p. 51) and his argument to select “a critical case,” this research focuses on a delimited sector within the medico-tech industry. The chosen focal point is the competitive landscape surrounding product development for the treatment of Phantom Limb Pain (PLP). PLP is a complex disorder to treat and, as such, it feeds several innovative and technology-intensive proposed solutions. Some are more technologically complex than others. Some are more invasive than others. A first glance at the PLP-related industry reveals a very diverse set of competitors, both in terms of organizational size and product offerings delivered to end users. Most companies operating within this industry naturally focus on product innovation solutions to relieve PLP sensations.

The PLP industry sample comprises 80 companies with product and/or service offerings ranging from alternative treatments, medicines and prosthetics to invasive technologies. This sample is part of the EU-project “EPIONE”⁴ – a consortium of 12 partners from Europe (EU) and the United States (US) involving clinical, industrial and academic institutions – that aims to challenge the status-quo of PLP treatment and to launch new technological solutions. These 80 companies represent the competitive environment in which the EPIONE technologies will be deployed. The identification of the companies was achieved through interviews with professional experts and scholars within the area of PLP, pain treatment and neurological treatment, as well as desk-based research.

⁴ <https://cordis.europa.eu/project/rcn/109345/reporting/en>

We clustered the companies according to the type of PLP treatment they were offering.⁵ We investigated the following sub-groups:

1. Digital (14 companies: 18 percent). This sub-group includes companies based on non-invasive, technological treatments that make an extensive use of digital technologies and big data, such as 3D glasses and related software or multi-sensor brain stimulation and activation.
2. Medical non-invasive (29 companies: 36 percent). This sub-group encompasses companies that treat PLP with orthopaedics, prosthetics and pharmacological products to reduce an amputee's phantom pain.
3. Medical invasive (37 companies: 46 percent). This sub-group includes companies that, in addition to being highly technological, are strictly focused on medical application as they use central and peripheral nervous systems stimulation or biorobotics approaches.

Although all the studied companies have the common goal of alleviating PLP, the identified clusters are characterized by an increasing degree of regulation when moving from digital applications to the two medical sub-groups.

4.3.2. RESEARCH DESIGN

In order to achieve the research objective, this study followed the research design and steps described below:

1. Selection of the theoretical framework to investigate if, and to what extent, companies within the PLP industry are differentiated from each other. Here we applied Taran *et al.*'s (2016) framework, mentioned in section 4.2.1;
2. Collection, through a document analysis approach (Bowen, 2009), of relevant data to profile the business model configurations of the companies operating within the PLP industry;
3. In-depth analysis of the literature on business model configurations to develop a coding frame (Benaquisto, 2008), which we refer to from hereon as the business model "QUANT System" (Nielsen *et al.*, 2017b). This QUANT System is a qualitative analysis tool, that visualizes the five value drivers of a given organization. This system is operationalized as a list of 56 questions that capture the full essence of the 71 business model configurations included in Taran *et al.*'s (2016) framework. Figure 4-1 illustrates the design of the QUANT System;
4. Expert mapping procedure carried out by the research team by answering the 56 questions for each of the case companies using the data collected in step 2;

⁵ This categorization is thought to create three groups of similar size in order to allow the observation of sub-group specific peculiarities.

5. Analysis of the pattern of answers for each of the case companies and, consistent with the specific pattern, identification of the business model configurations adopted by each of the case companies.

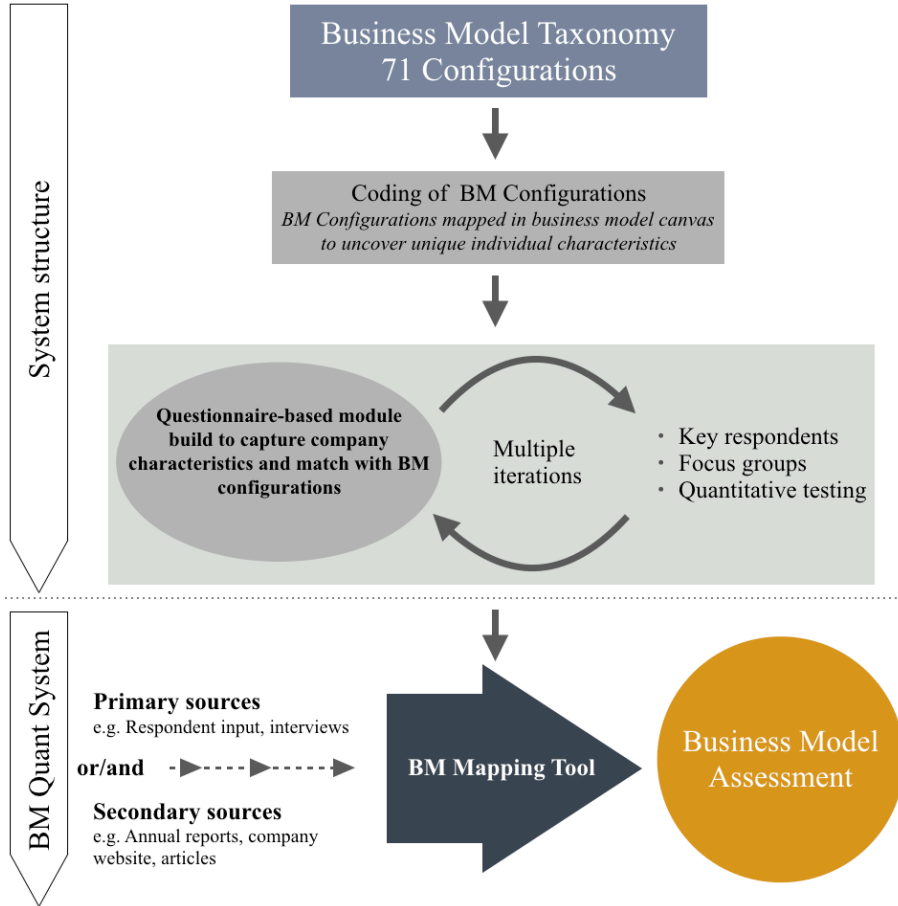


Figure 4-1. The Business Model QUANT System design

The following section provides a detailed illustration of the data collection and data analysis techniques.

4.3.3. DATA COLLECTION AND ANALYSIS

Following the document analysis approach (Bowen, 2009), data on the 80 case companies were gathered from annual reports, integrated reports, sustainability reports and companies' websites. The research team made systematic use of data

triangulation (Denzin, 1978) to cross-check and verify the information gathered from different data sources.

Data, as previously mentioned, was then analyzed using the 5-V framework (Taran *et al.*, 2016), and the business model QUANT System (Nielsen *et al.*, 2017b). This allowed the research team to follow a standardized mapping process for visualizing the business model configurations of various companies. Operationalized into a list of 56 questions, we could investigate the most important features of the business models adopted by the case companies, for example the offering portfolio, the nature of the markets served, the channels used to reach the target market, the profit formula, value configuration mechanisms and the most important strategic partners involved in the business' operations.

To ensure the content validity of the questionnaire, the questions were developed by drawing on the business model configuration literature (Gassmann *et al.*, 2014; Johnson, 2010; Linder and Cantrell, 2000; Osterwalder and Pigneur, 2010; Weill and Vitale, 2001) in general, and the 71 business model configurations proposed by Taran *et al.* (2016), in particular. Furthermore, in order to guarantee criterion validity, the questions developed were first tested within a group of case companies (outside of this research sample scope) that are well known for exhibiting the traits to be measured (for example Gillette as a company adopting a Bait and Hook configuration, Skype as a company adopting a Freemium configuration). Once the list of 56 questions was robust and valid enough, it was applied as a coding frame (Benaquisto, 2008) and a guiding conceptual scheme to classify, organize and interpret the data collected through document analysis. This was then used to translate the data itself into results, that is, the business model configurations of the 80 case companies.

It should be noted, though, that the questionnaire applied for analysing the data did not involve any direct contact with company respondents. This clearly has advantages and disadvantages; we chose this approach because it allowed us to utilize an expert mapping procedure and avoid distortions related to the subjective understandings of individual respondents, who are not as familiar with the business model literature as the research team is.

Four members of the research team conducted the mapping process. In order to ensure a high standard of inter-rater reliability, the researchers individually mapped five pilot cases from different segments by filling in the questionnaire and then compared the mapping outcomes during four preparation meetings. During these meetings, a code consistency check was carried out, incongruities were highlighted and their reasons were discussed to reach an agreement.

Then, each researcher was assigned to analyse 19 companies, across all the three sub-groups, to ensure consistency of results and to avoid personal biases within specific sub-groups. Subsequently, the researchers cross-checked each other's results in a set

of follow-up meetings. Minor disagreements regarding the business model configuration profiles of few case companies were identified and then, to ensure alignment, a combined group discussion took place until researchers agreed on the appropriate categorization. Gradually, this iterative process allowed the research team to determine the business model configurations of the 80 companies. Once the various business model configurations of each company were identified, it was then possible to analyse similarities and deviations of various business model configurations applied within the overall PLP industry, as well as within the industry sub-groups.

4.4. RESULTS

The results were interpreted in two successive steps, ranging from an aggregated level – including the business model configurations of all companies’ operating within the area of PLP treatment – towards a more granular level – by zooming in on the specific sub-groups (digital, medical non-invasive and medical invasive).

4.4.1. OVERALL INDUSTRIAL CONTEXT

Taran *et al.* (2016) argue that every real-life company is a constellation set of various business model configurations aligned together, meaning that a company can adopt several business model configurations simultaneously to create, deliver and capture value. Table 4-1 presents the business model configurations adopted within the PLP industry and their related value drivers.

Table 4-1. Business model configurations (as described by Taran et al. (2016)) and the related value drivers within the PLP industry

Business model configuration	Description	Value driver	%
Full service provider	Provides a total and complete coverage of services in one particular area (e.g. financial services, healthcare)	Value Proposition	12.05%
Trusted advisor	Stays on top of the information loop and provides customers with answers to complex questions	Value Proposition	11.88%
Customer focused	Focuses on customer needs and decentralizes infrastructure management and product innovation activities	Value Segment	7.57%
Trusted operation	Provides predictable operations that carry big consequences for failure	Value Proposition	7.40%

BUSINESS MODEL CONFIGURATIONS

Quality selling	Sells high-quality products for premium prices	Value Proposition	6.02%
Core focused	Focus on very core competencies of the company (e.g. customer relationship activities) and outsource all others (e.g. R&D, manufacturing, logistics activities)	Value Configuration	6.02%
Multi-sided platforms	Create value by facilitating interactions between two or more distinct but interdependent groups of customers	Value Segment	5.68%
Incomparable products/services	Exploit proprietary technology to offer unique products/services that command high margins	Value Proposition	4.99%
Integrated	Routinely utilize external sources to fuel the business model and unused ideas are allowed to flow outside to others' business models. The company becomes a system integrator of internal and external technologies	Value Network	4.13%
Outside-in	Gather value (e.g. information) from external sources, such as innovation partners and research communities	Value Network	3.44%
Trusted product/service leadership	Ensure long-lasting customer relationships through a platform with a continuous upgrade path	Value Proposition	2.93%
Channel maximization	Product is distributed through as many channels as possible to create the broadest distribution possible	Value Configuration	2.58%
The long tail	Sell a wide range of products in low quantity	Value Capture	2.24%
Breakthrough markets	Invest in opening new markets to gain at least a temporary monopoly	Value Segment	2.07%
36 configurations weighting less than 2% each	-	-	21.00%

21 configurations not used at all	-	-	0.00%
TOTAL			100 %

Studying the business model configurations applied within the PLP industry shows that the five most recurrent business model configurations in the PLP industry are:

- Full service provider: provides a total and complete coverage of services in one particular area (for example, financial services, healthcare);
- Trusted advisor: stays on top of the information loop and provides customers with answers to complex questions;
- Customer focused: focuses on customer needs and decentralizes infrastructure management and product innovation activities;
- Trusted operations: provides predictable operations that carry big consequences for failure;
- Quality selling: sells high-quality products for premium prices.

Consistent with the features of the above-mentioned business model configurations in the PLP industry, the competition among companies is very intense and seemingly dependent on only a few key success factors, such as the portfolio breadth, customer trust, developing ad-hoc solutions for customers, decentralizing infrastructure management to customers, decentralizing product innovation activities, safety and high-quality products.

The results also suggest that, on an aggregated level, most companies operating within PLP treatment apply business model configurations that are linked to the value proposition dimension; while business model configurations linked to value segment, value configuration, value capture and value network are adopted (far) less frequently. 14 business model configurations – that is, 19.71 percent of the entire business model configuration portfolio available – account for 79 percent of the whole industry, and only six business model configurations – 8.45 percent of the available business model configurations – account for 51 percent of the whole industry. We also identify that 36 business model configurations are present, but each with less than a 2 percent occurrence rate. Further, 21 out of the 71 business model configurations, equalling about 30 percent of the entire business model configuration portfolio, are not used in the PLP industry at all. This indicates a *high level* of concentration around a few business model configurations.

Taken together, the results suggest that the phenomenon of business model imitation is clearly present within the PLP industry and the degree of experimentation with different configurations is considered low, for example, in presenting dissimilar revenue streams, dissimilar partners/suppliers or dissimilar value chains.

4.4.2. ZOOMING INTO SEPARATE INDUSTRIAL SUB-GROUPS

The detailed segmentation of the companies allowed us to cluster them into similar categories. Moving from the aggregated level of the PLP industry to the specific sub-groups, the analysis depicts an increasing concentration around a few “core” business model configurations primarily linked to the two dimensions of value proposition and value segments. Table 4-2 compares the business model configurations across the three sub-groups.

Table 4-2. The business model configurations (and related value drivers) across the three sub-groups

DIGITAL			MEDICAL - NON-INVASIVE			MEDICAL - INVASIVE		
BM configuration	Value driver	%	BM configuration	Value driver	%	BM configuration	Value driver	%
Multi-sided platforms	Value segment	13.27%	Quality selling	Value proposition	10.94%	Full service provider	Value proposition	16.49%
Core focused	Value configuration	9.18%	Trusted advisor	Value proposition	9.90%	Trusted advisor	Value proposition	15.46%
Outside-in	Value network	9.18%	Customer focused	Value segment	9.38%	Trusted operation	Value proposition	9.62%
Incomparable products/services	Value proposition	7.14%	Full service provider	Value proposition	9.38%	Customer focused	Value segment	8.25%
De facto standard	Value network	6.12%	Incomparable products/services	Value proposition	7.29%	Core focused	Value configuration	7.56%
Trusted advisor	Value proposition	5.10%	Multi-sided platforms	Value segment	6.25%	Integrated	Value network	5.50%
Trusted operation	Value proposition	5.10%	Trusted operation	Value proposition	5.21%	Quality selling	Value proposition	3.78%
Channel maximization	Value configuration	4.08%	Trusted product/service leadership	Value proposition	4.17%	Incomparable products/services	Value proposition	2.75%
Full service provider	Value proposition	4.08%	Breakthrough markets	Value segment	3.65%	Multi-sided platforms	Value segment	2.75%
Integrated	Value network	4.08%	Branded reliable commodity	Value configuration	2.60%	The long tail	Value capture	2.75%
Value chain service provider	Value proposition	4.08%	Channel maximization	Value configuration	2.60%	Trusted product/service leadership	Value proposition	2.75%
Breakthrough markets	Value segment	3.06%	Inside-out	Value network	2.60%	Integrator	Value configuration	2.41%
Quality selling	Value proposition	3.06%	Mass-customized commodity	Value proposition	2.60%	Outside-in	Value network	2.41%
15 BM configurations weighting less than 3% each	-	22.45%	The long tail	Value capture	2.60%	Channel maximization	Value configuration	2.06%
43 BM configurations not used at all	-	0.00%	White label	Value configuration	2.60%	24 BM configurations weighting less than 2% each	-	15.46%
			14 BM configurations weighting less than 2.50% each		18.23%	33 BM configurations not used at all		0.00%
			43 BM configurations not used at all		0.00%			
TOTAL		100.00%			100.00%			100.00%

Despite the particular differences between the sub-groups, there is also a high degree of homogeneity within and across these three sub-groups. Thus, here too, business model imitation can be observed. The analysis shows that regardless of companies' dissimilar profiles in terms of size, product differentiation, location and turnover, a high degree of business model imitation is present.

Zooming into the digital sub-group, six business model configurations (8.45 percent of the entire business model configuration portfolio available) account for 50 percent of the whole sub-group. While 15 business model configurations are present, each has less than a 3 percent occurrence rate and 43 business model configurations (equalling about 60 percent of the entire business model configuration portfolio) are not used in the sub-group at all.

Concerning the medical non-invasive sub-group, the results show that six business model configurations account for the 53 percent of the whole sub-group segment; 14 business model configurations are present, but each with less than a 2.5 percent occurrence rate. Meanwhile, 42 business model configurations (equalling about 60 percent of the entire business model configuration portfolio) are not used in the sub-group at all.

Finally, regarding the medical invasive sub-group, the results show that six business model configurations account for the 63 percent of the whole sub-group; 24 business model configurations are present, but each with less than a 2.5 percent occurrence rate. Meanwhile, 33 business model configurations (equalling about 60 percent of the entire business model configuration portfolio) are not used in the sub-group at all. Thus, a high degree of imitation can be observed at the sub group level, although with different intensities. Analysing the dominant business model configurations within digital sub-group, highlights that business model imitation leads to hyper-competition on key success factors like newness, customer network construction and management, partner network construction and management, and supply chain excellence. The analysis of the dominant business model configurations of the medical non-invasive and medical invasive reveals that competition among companies is very intense on the same few key success factors, such as high quality, customer trust, safety, portfolio breadth, developing customized solutions. Despite the similarity between the medical non-invasive and medical invasive sub-groups, it is worth underscoring that the relevance of the key success factors changes depending on the sub-group. For example, within the medical non-invasive sub-group the emphasis on high quality is stronger than within the medical invasive sub-group; vice versa, portfolio breadth is more important within the medical invasive sub-group than within the medical non-invasive sub-group.

These results are somewhat surprising as greater diversification in business model configurations was expected in the three sub-groups, given the higher degree of competition (i.e. digital solutions; medical non-invasive; medical invasive), yet this was not the case.

Also, the importance of the value proposition-related business model configurations appears to increase as the PLP treatment moves towards more medical-oriented sub-groups. This could be traced back to the increasing degree of regulation, which demands a strong focus on value proposition-related key success factors, such as safety and customer trust.

4.5. DISCUSSION AND CONCLUSION

The purpose of this study was to explore the phenomenon of business model imitation and to shed light on its relation to business model innovation. In view of the frequency of imitative behaviours in business, this paper contributes to the business model innovation and imitation literature by illustrating that imitation practices take place not only on strategy, product, process, technology or organizational levels, but also on a business model level.

Our results show that, on the aggregated level of analysis, companies operating within the area of PLP treatment apply relatively similar business model configurations and most of these are within the value proposition category. Within this category, only a limited number of business model configurations are implemented by companies.

As the analysis zoomed in on the sub-group level, the homogeneity of the business model configurations applied by competing companies became more clear. This indicates that companies mostly imitate the successful business models of their main competitors in their specific sub-groups. However, caution should be added in respect to this conclusion, as the homogeneity of business model configuration application may also be partly due to regulations and possibly other contextual factors, such as technology and product complexity, IPR, and supply chain constraints.

4.5.1. THEORETICAL CONTRIBUTION

Several lines of reasoning may explain this imitative behaviour. One reason could be that companies might want to compete on just a few established parameters to avoid the risks of competitors' reactions, which might lead to unanticipated consequences. Thereby, and in accordance with (Casadesus-Masanell and Zhu (2013), similar business models are typically introduced within an industry, rather than completely new business models to the industry. The latter phenomenon indicates a certain degree of institutionalization of business models within certain sectors, due to mimetic isomorphism (Lieberman and Asaba, 2006; Powell and DiMaggio, 1991).

An alternative, possibly more probable explanation for the rather prominent level of business model imitation activities, is that these companies are unconsciously imitating each other's business models. Following on the notable work of (Dimaggio and Powell, 2012) – who suggest that companies' limited understanding of new practices cause mimetic behaviours – it could be plausibly argued that, given the innovative nature of this industry, companies predominately focus on achieving product innovation and not necessarily in experimenting with new business models. In terms of technology, product innovation in this industry is already considered being “hard enough,” therefore, no novel revenue streams or distinctly different value configurations are even considered. Yet, by overlooking the potential of the business model as a *source* of differentiation, companies may lack the capabilities to fully exploit the potential value of their new product innovation. Although somewhat speculative, this statement challenges existing assumptions regarding imitation strategies. For example, Lieberman and Asaba (2006) take a position that all imitations are rational, intentional and purposeful. Therefore, this statement should be further hypothesized and tested.

Regardless of the reasons, homogeneity of business model configurations increases the density of competitiveness, where companies attempt to outcompete their rivals using relatively similar competitive factors, configurations and business models (for example, comparable value propositions, value/supply chain activities and/or revenue streams). This, unavoidably, could lead companies to seek differentiation through optimization, with a strong focus on cost reduction, flexibility and operational efficiencies, rather than through “new to the industry” or “new to the world” business model configuration innovation strategies.

This strategic imitation of focusing on being “second-better,” “second-faster,” or “second-cheaper” has shown to diminish the innovation space available for companies (Lieberman and Asaba, 2006).

After all, the literature on business model configurations suggests that there are many ways to reconfigure a company's value chain, revenue streams or target customers. This, in effect, can open an even bigger innovation space for competing companies to innovate their business models, not necessarily by seeking radical or disruptively new business model possibilities (Gassmann *et al.*, 2014), but rather through dissimilar business model configurations. By expanding the innovation horizon using dissimilar business model configurations, competing companies may very well offer similar value propositions, but with different business model DNA profiles, such as *different* revenue streams, *different* target customers and/or *different* value chains.

However, it is also important to note that imitation practices on the level of business models pose very different challenges compared to other forms of imitation, such as product, organizational or technological imitations (Bucherer *et al.*, 2012; Markides, 2006). Here, we argue that business model imitation should be treated as a distinct

imitation phenomenon. More research in this field is needed given the complex nature of business model imitation, which requires different ways of organizing both strategic and operational practices.

4.5.2. PRACTICAL CONTRIBUTION

“... A mediocre technology pursued within a great business model may be more valuable than a great technology exploited via a mediocre business model” (Chesbrough, 2010, p. 355).

Indeed, imitation practices are relatively easy to carry out on a product, technology or organizational-type level (Bucherer *et al.*, 2012) because companies have something “visible” to aim for and work reactively to obtain the benefits of being the “fast second.” business model imitation practices, in contrast, can follow a different process, produce different effects on the market, and have different managerial implications.

Given the economic and societal effects of competitiveness, it is important that researchers, practitioners and policymakers understand why business model imitation occurs, and the advantages and disadvantages of adopting business model imitation strategies vis-à-vis business model innovation.

From a practical perspective, our findings challenge practitioners to reflect on their future innovation intentions by questioning the degree of imitation in the planned activities, that is, where do they stand on the imitation-innovative scale? Implicitly within this study, we propose an additional contribution to the study of business model design by arguing that the business model configuration mapping process is useful not only for visualizing the “as-is” business model configuration of a given company, or in envisioning potential “to be” business model configurations, but also as an imitative benchmark analysis, where practitioners may perceive the extent of their differentiation (if at all) from their competitors. This could then sharpen managers’ future business model innovation intentions by defining and clarifying their potential business model innovation routes.

4.5.3. LIMITATIONS AND FUTURE RESEARCH

The findings presented in this paper have several limitations, some of which are intrinsic to the research design. First, although encompassing 80 companies, the sample contains cases from several industry sub-groups and, in some of these sub-groups, the number of companies is rather small. Second, although a series of precautions (for instance, several coders, cross-checks and alignments) have been taken to minimize researchers’ subjectivity, the present study is affected by the applied data collection and analysis methods. It may be argued that results would have

differed, but not necessarily been more valid, if the managers of the case companies had answered the questionnaire.

Concerning future avenues of research, a major point to address is whether companies actively or passively configure themselves with specific business model configurations and whether these are due to strategic competitive choices or are somewhat “given” intrinsically from the market they operate in.

Future studies similar to the decision-making logics investigated in Reymen *et al.* (2017) are needed to shed light on how managers decide whether to imitate or innovate. This avenue entails investigating the reasons why business model imitation practices take place; in other words, finding out if business model imitation practices can be traced back to information-based theories and/or rivalry-based theories (Lieberman and Asaba, 2006). Engaging in dialogue through interviews with executives could be helpful to better determine this current behaviour.

CHAPTER 5. DO BUSINESS MODEL DISCLOSURE LEAD TO FAITHFUL REPRESENTATION OF VALUE DRIVERS? – EVIDENCE FROM THE UK

Arising from a need to describing companies' value creation processes holistically, a new agenda within financial reporting is evolving through the introduction of business models (business model) as a regulatory requirement. However, current regulation continues to provide companies with significant discretion in deciding what and how to communicate. Previous studies have reported the inability of companies' disclosure practices to represent the business model in a coherent fashion; however, these studies tend to disagree concerning the level of disclosure and whether or not this is a problem. Furthermore, most extent studies of business model disclosure have been conducted at a relatively low level of abstraction. This exploratory paper utilises both a holistic approach and a more detailed level of abstraction to identify the extent of disclosure made by companies. The paper examines the levels of mandatory business model disclosure among a sample of 75 UK companies listed on the London Stock Exchange from 2014–2016. The extent to which the value drivers that underpin companies' value creation processes are disclosed in the business model section and the annual report in general is verified.

5.1. INTRODUCTION

The ambition of communicating a company's business model is to offer a representation of how value is created and delivered. This has recently led standard-setters in different countries to introduce regulations that require large companies to incorporate a description of their business model (business model) in their annual reports. Business models are regarded as offering coherence to often haphazard or optimistic company portrayals (Nielsen and Madsen, 2009) because they offer logical connections and a unified whole. With the introduction of the *Companies Act, Regulation 2013*, the United Kingdom (UK) was the first country to require companies to disclose their business model. The European Union (EU) Directive 95/2014 was issued shortly after, requiring large companies with headquarters in an EU member country to communicate a set of non-financial information, including a description of their business model. The UK Financial Reporting Council (FRC) makes reference to purpose of a business model in the following terms:

“The description of the entity’s business model should set out how it generates or preserves value over the longer term, and how it captures that value. It should describe what the entity does and why it does it. It should also make clear what makes it different from, or the basis on which it competes with, its peers.” (FRC, 2014, Guidance on the Strategic Report, paragraph 7.12).

In order to meet expectations of a coherent offer, the disclosures made regarding the business model would need to be consistent with what may be expected from a given company. In the context of a business model *value drivers* are those factors, including resources, capabilities and business relations, which contribute to the creation of value and differentiate a company from its competitors (Amit and Zott, 2001). To accommodate the new requirements of disclosure, a coherence should be found between business model disclosure and the value creation process that informs the company's business model, which would thereby be capable of showing information about its key value drivers.

Despite the new requirements and the associated guidelines on how to disclose business models, companies continue to have high discretion in choosing what and how to communicate. Consequently, disclosure on business models tend to suffer from information asymmetry, while companies approach the task differently. A more robust and standardized disclosure is arguably relevant to assess in order to insure transparency to external stakeholders. Arguably, companies might be hesitant to fully disclose information on their value generating processes, not to mention incurring high proprietary costs.

Although only few, existing studies examining the use of business models within annual reports provide inspiring but divergent results, prompting calls for further research in this area (Beattie and Smith, 2013; Nielsen and Roslender, 2015; Page,

2014). Concerning these calls, Mechelli *et al.* (2017) find voluntary business model disclosure has a significant impact on the value relevance of accounting information. Other studies are critical of the relevance of business model disclosure and the capability of the annual report to effectively depict the business model (Page, 2014; Singleton-Green, 2010). Bini *et al.* (2016) analyse some companies operating in a high-tech industry sector. Their findings indicate that all the companies under investigation reported information about some business model elements but only in a few cases were the descriptions able to illustrate how different resources are combined to effectively pursue value creation. Lassini *et al.* (2016) examine the relationship between business model configurations and accounting choices, reporting no relationships between business models and accounting choices and conclude that financial reporting is not able to adequately represent a company's business model.

To our knowledge, no studies have assessed whether the information disclosed in the annual report and business model section faithfully reflects the value creation process of a particular business, and in particular the value drivers that characterize that business (Amit and Zott, 2001; Zott *et al.*, 2011). Hence there is still a lack of knowledge concerning a company's capability of business model disclosure to convey information about the key value drivers the company relies on. Ultimately this raises the question as to whether companies under the new regulations actually disclose a faithful representation of their business model?

In light of the above, the following research question informs the present paper:

Are business model representations in annual reports faithful indications of the business models actually being employed by the companies?

In answering this research question, the paper also discusses how mandatory business model disclosure and the existing FRC guidelines lead to disclosure of the key value drivers that characterize a company's value creation pattern. Given the limited guidelines on business model disclosure provided by FRC and the varied motivations within individual companies, we investigate the quality of current business model disclosures through the lens of business model theory. We examine mandatory business model disclosure over the course of three years (2014–2016) in 75 UK companies listed on the London Stock Exchange. The paper explores the extent of disclosure and endeavours to verify whether or not the value drivers that underpin companies' value creation processes are disclosed in the annual report and business model section. We do this on two levels of abstraction; the first being a more holistic overview of the business model information disclosed and the second a more detailed investigation of the companies' value configurations and disclosure of value drivers. With this approach we wish evaluate and discuss the potential of business model disclosure from an overarching standpoint.

The remainder of the paper is organised as follows. Section 2 provides a contextualising review of the place of the business model in the annual report package. The following section outlines the constituents of the research design for the study reported in the paper. The fourth section analyses and discusses the study's findings. The final section presents the conclusions of the study and identifies some further areas of research.

5.2. THE PROMISE OF INCORPORATING BUSINESS MODEL WITHIN THE ANNUAL REPORT

5.2.1. THE INITIAL STEPS

In 2010 the Institute of Chartered Accountants of England and Wales (ICAEW) published a report entitled *Business Models in Accounting: The Theory of the Firm and Financial Reporting*, thus making direct reference to the business model concept. The report asserted that financial reports ought to reflect the business model of the reporting entity, on the grounds that “different business models will account for the same asset in different ways depending on what its role is within the firm’s business model” (ICAEW, 2010: 3). However, throughout the ICAEW report it is difficult to determine what the term business model actually refers to. The ICAEW’s position on the need to incorporate the business model within modern financial reporting evolved in parallel to, although independent of, that embraced by the International Integrated Reporting Council (IIRC). Within their *International <IR> Framework*, the business model sits at the heart of their proposal (IIRC, 2013: 13). IR is envisaged by the IIRC to constitute a desirable next approach to financial reporting, replacing the increasingly unsound corporate reporting approach that has its origins in the mid-1970s.

In 2013 the UK government were the first to require companies to disclose their business models as a part of the new Strategic Report (*Companies Act, Regulation 2013*). Subsequently the FRC provided the following guidance on disclosing an organisation’s business model:

“The description of the entity’s business model should set out how it generates or preserves value over the longer term, and how it captures that value. It should describe what the entity does and why it does it. It should also make clear what makes it different from, or the basis on which it competes with, its peers.” (FRC, 2014, para. 7.12).

For the FRC value capture (for shareholders) continues to assume major significance in the context of business model reporting, further affirming their primacy and their established information needs over that of other stakeholder-groups. The reference to generating or preserving value resonates with the IIRC’s perspective. The suggestion that companies provide some insight on the business operations is vague, however,

while encouragement that companies reflect on how they engage with what might be designated sustainable competitive advantage (after Porter, 1980, 1985) is ambitious. Or viewed in another way, it is commending excursions into unfamiliar territories.

5.2.2. THE NARRATIVE REPORTING INTERFACE

The UK requirement to provide details of a company's business model continues the country's promotion of narrative reporting. While not suggesting that the UK has always been at the forefront of narrative reporting within the annual report, it has certainly played a major role. The UK's initial foray into narrative reporting was marked by the Accounting Standards Board's (ASB) 1993 recommendation that organisations should now include some form of Operating and Financial Review (OFR) within the annual report package. The disclosure of information about strategy, risks and policies offered managers an opportunity to provide a discussion and illustrate significant factors underlying financial performance and operational issues (Beattie *et al.*, 2008).

Providing an OFR quickly became 'best practice' for large companies across the UK. A survey conducted by Deloitte (2006) indicated that most large companies in the UK had voluntarily adopted the OFR framework. Nevertheless, in that year the UK government proposed legislation requiring a mandatory disclosure of information about a company's strategy, objectives, employees and other social and environmental matters in a section of the annual report identified as the Business Review (the forerunner to the 2013 Strategic Report). What was finally agreed was more modest than had originally been contained in the initial White Paper that provoked opposition from a number of sections of the UK accounting professions (Roslender and Stevenson, 2009; Rowbottom and Schroeder, 2014).

Although mandatory disclosure is widely regarded as entailing a step change from voluntary disclosure, organisations continue to have considerable leeway to disclose what they wish to disclose in order to satisfy statutory requirements. Basically, what is disclosed under mandatory requirements is what the organisation perceives it is being asked to disclose, and little else, the utility of which may in fact be limited. At least with voluntary disclosures there is always the possibility of revealing significant information rather than standardized information. These considerations are likewise transferable to business model disclosure as investors do not believe that a full disclosure poses any competitive issues, whereas the companies are afraid of losing their competitive advantage by making a full business model disclosure (FRC, 2016).

5.2.3. VALUE DRIVERS AND BUSINESS MODELS

The term value driver has been used in the strategic management field to identify the many different factors, including activities, competences, attributes, relationships that are critical to achieving and sustaining an organisation's competitive advantage (Amit

and Zott, 2001; Zott et al., 2011). In parallel, this same term has been used to address different factors that must be measured in order to understand value creation (e.g., McNair *et al.*, 2001), such as knowledge, relations, technology, processes (e.g., Beattie and Smith, 2013; Ulf Johanson *et al.*, 2001), fees and pricing mechanisms (Isidro and Grilo, 2012). It now seems appropriate to borrow the value driver term to refer to the factors that exist to create value for and deliver value to customers in addition to shareholders.

The process of disclosing a company's business model, or combination of business models, should therefore be understood to entail the disclosure of its key value drivers and how they are understood to contribute to creating and delivering the value, and particularly the emotional or intangible value, sought by customers via attractive value propositions, in parallel to the financial value that is captured on behalf of shareholders. Full business model disclosure will provide insights about the various value drivers, as the basis for sustainable competitive advantage, including key knowledges, relationships, technologies, processes, pricing, that is, much of the information that companies have long resisted making public.

The business model concept has spawned a myriad of definitions over the past two decades, all of which possess some merit but none of which can be considered definitive. For the purposes of this paper we adopt the characterisation previously advanced in this journal by (Nielsen and Roslender, 2015). In their view a business model is:

“[A] description of the organisation's concept for ‘earning’ money [that] identifies the platform that connects value creation and delivery between the organisation, its stakeholders, and its customers in order to capture value.”
(Nielsen and Roslender, 2015).

For Nielsen and Roslender (2015), a business model is to be understood as a visualisation, that is, a way of conceptualising how companies either have or intend to make (‘earn’) money. If earning money was the sole objective of companies, then it would be possible to question how a business model is different to a strategy, understood as how a company achieves the generic profit maximisation objective. However, in these now more enlightened times companies exhibit an array of objectives that they might pursue, and in various combinations. Consequently, when we talk of a company's strategy we actually mean something more composite in nature, a combination of focused strategies that may or may not be coherent. Traditionally such strategies have been designated tactics, a concept that brings with it a whole range of problems.

Linking the business model concept to the conventional profit maximisation strategy in the above way suggests that it has something of a regressive quality associated with it. As a consequence, Nielsen and Roslender (2015) might be regarded as reinforcing

such a view by talking about ‘earning’ money, which can readily be interpreted as pursuing profit, enthusiastically, if not necessarily profit maximisation. The objective of capturing value is how creating value for and delivering value to shareholders is now increasingly termed (Beattie and Smith, 2013). Once again, the implication is that the premier objective for the enterprise is to provide substantial financial value for its shareholders, whether in the form of yearly dividends or more crucially appreciation in the value of shareholding. The same caveats apply to value capture as do to profit maximisation.

The commitment to either of the latter objectives, which are themselves intimately linked, is no longer espoused as unquestioningly as in previous times. This should not be understood to suggest that neither objective presently has no major significance, rather that there has been a measure of moderation evident within the economic system we still recognise as capitalist. Equally, there is a strong case for believing that during the past couple of generations there have been signs of a reversal of direction away from the more corporatist economic system that emerged in the post-war era. The neo-liberal designation that has become increasingly visible in recent times encompasses a re-emergence of a more market-based approach to economics, coupled with systematic reductions in levels of government intervention and spending.

The introduction of the value driver concept into the business model literature, in combination with a dual emphasis on creating value for and delivering value to customers *and* shareholders as postulated by Nielsen and Roslender (2015), provides a broader foundation on which to explore the faithfulness of business model disclosure exercises within annual reports, to which task we now turn.

5.3. RESEARCH DESIGN

To investigate the research objective, we adopt a novel approach that allows the identification of a company’s key value drivers according to its espoused business model. Disclosure assessment then aims to verify whether and to what extent the elements disclosed in the name of the company’s business model actually reflect those value drivers. In doing so, this study contributes to literature of disclosure assessment. Prior studies that investigate non-financial disclosure normally apply the same list of items to all the companies under investigation, assuming that all the aspects of the framework used for the analysis have the same importance for all the examined entities. This approach has also been used in the business model disclosure field. Prior research relies on a pre-defined framework and assesses business model by means of the identification of the presence or absence of the items in that framework. For instance, Mechelli *et al.* (2017) use the requirements of the IASB (2010) as a proxy for business model disclosure requirements and verify the presence of those items in the annual reports of companies under examination. Similarly, the studies conducted by Bini *et al.* (2018, 2016, 2019) evaluate business model disclosure on the basis of

the Business Model Canvas (BMC) (Osterwalder and Pigneur, 2010), which represents the most widely recognised business model framework.

With the latter observation in mind, the present study also utilised the BMC to perform an initial deductive content analysis of current business model disclosure (see figure 1). In phase 1 of the study a set of annual reports of UK companies was reviewed in order to determine the extent and content of current business model disclosures. In the second phase of the study an “expert assessment” of each of the sample’s business models was conducted to gain a more detailed understanding of disclosure practice. In order to pursue this latter exercise a more extensive analytical approach, the Business Model Quant (BMQ) approach developed by Nielsen *et al.* (2017), was employed. This method facilitates gaining a fuller appreciation of a company’s business model, and thereby enables a comparative analysis between “what is disclosed” and “what should be disclosed” in respect of value drivers.

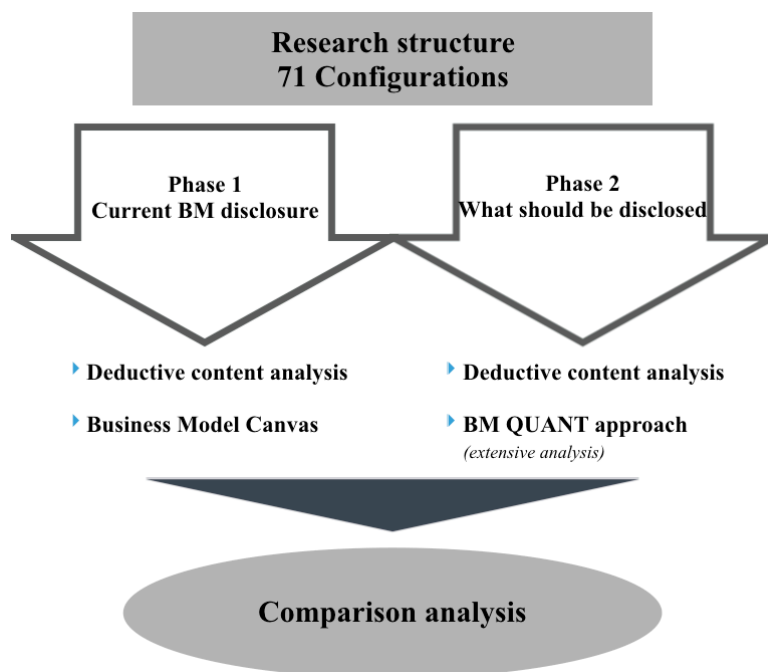


Figure 5-1. Research structure

5.3.1. EMPIRICAL SETTING

The data in the paper was collected from a sample of listed UK companies, who are now required to provide a description of their business model in annual reports. The empirical data covers reports over a three-year period (2014-2016). The reason for

choosing this longitudinal approach was to observe the “effect over time” as the regulations were introduced in 2013 and, hence, some time for adaption may be experienced. The data was collected from companies drawn from the Main Market of the London Stock Exchange operating within the following industries: software; electronics; food and beverage; industrial machinery; and chemicals and pharmaceuticals. This group of industries represent some of the most important sub-sectors in the FTSE Global Classification System in terms of size. Furthermore, these industries have different levels of technology, with food and beverage less dependent on technology, while chemicals and pharmaceuticals and software are heavily reliant on technology. The intensity of technology has been found to be positively related to the quality of non-financial disclosure in previous studies (Gu and Li, 2003; Oliveira *et al.*, 2006). From the five industries a total of 75 companies was identified and used in the analysis. The table shows the distribution of the companies in the different industries.

Table 5-1. Analysed companies by industry

Industry	No. of companies
Chemicals and Pharmaceuticals	19
Food and Beverage	15
Software	14
Industrial Machinery	16
Electronics	11
Total	75

5.3.2. CONTENT ANALYSIS – DEDUCTIVE PRINCIPLES

To analyse and assess disclosure practices, we initially employed deductive content analysis. Content analysis has been used in similar studies assessing corporate disclosure (Bryman and Bell, 2015; Bukh and Nielsen, 2010; White *et al.*, 2010), and in the assessment of business model disclosure (Bini *et al.*, 2016). A framework based on the BMC’s generic building blocks was used to categorise the content categories. Previous research suggests that frameworks incorporating fewer categories increases inter-rater reliability (Milne and Adler, 1999). The BMC is a comprehensive and widely used analytical framework, incorporating by nine generic building blocks that in aggregate are argued by Osterwalder and Pigneur (2010) to constitute a business

model. The building blocks themselves are derived from the main definitions of business model and its components found in the extant literature. Drawing from Bini *et al.* (2016, 2019), we identify the value drivers of individual companies by analysing the descriptions of those factors related to the building blocks as defined in the BMC. The building blocks that constitute the BMC also encompass the main traits depicted by the FRC and the EU in their guidelines on business model (Bini *et al.*, 2019).

In order to enhance coding reliability, the content analysis exercise was carried out in accordance to the recommendations of Krippendorff (2004) and Beattie and Thomson (2007), and entailing the creation of a strict coding protocol. The analysis was conducted by four researchers in order to reduce subjective bias (Beattie and Thomson, 2007). All four researchers performed the initial analysis to achieve an inter-rater reliability assessment and in order to align the approach according to the coding protocol. The business model sections of the sample of reports were carefully read and information containing value drivers and/or business model elements was coded in the corresponding category. Text units were chosen as the primary recording unit (Husin *et al.*, 2012). Text-units are defined as “each group of words containing a ‘single piece of information’ that is meaningful in its own right” (Beattie *et al.*, 2004, pp. 207). Text-units were chosen instead of sentences to reduce subjectivity in coding complex sentences. If the same sentence contained different information related to different categories, the use of text-units allowed the researchers to code different information in several categories. Alternatively, the whole sentence would have been classified with relation to the dominant category (Beattie and Thomson, 2007).

5.3.3. QUANT RESEARCH APPROACH

Ideally, a faithful representation of a given company’s business model should identify and disclose all those value drivers that characterise its value creation process. In order to assess the extent to which business model disclosure reflects the value creation process of a given company, the business model System developed by Nielsen *et al.* (2017) is applied as a predictive parameter to the research. This system extends the taxonomy of (Taran *et al.*, 2016) into a relational database and business model assessment system, as depicted in figure 5-2.

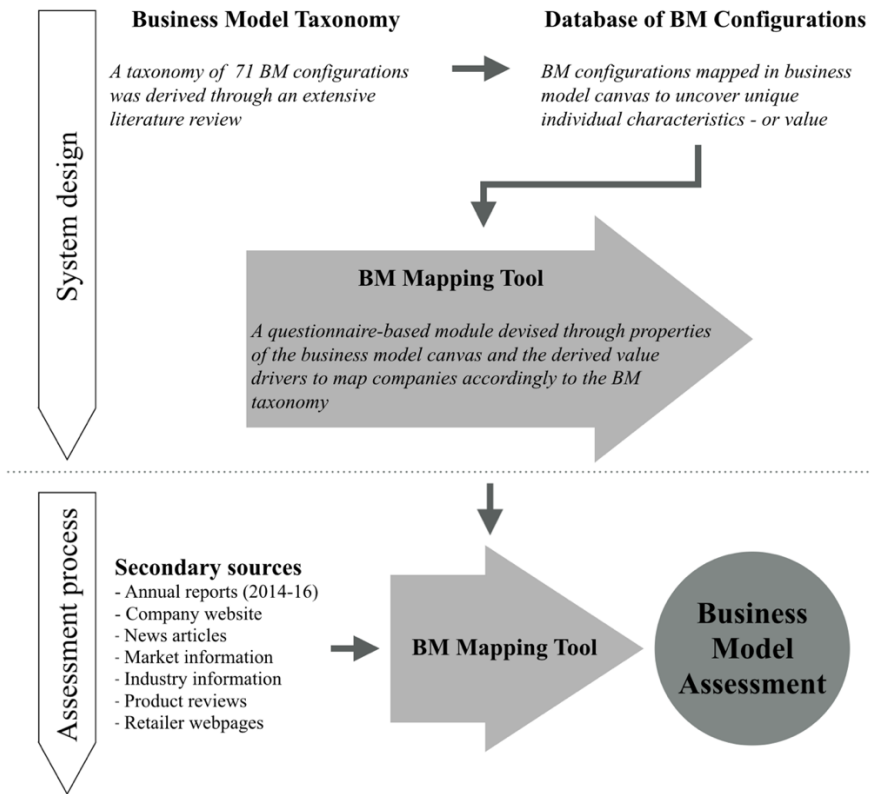


Figure 5-2. The Business Model QUANT system

Figure 5-2 comprises two parts: 1) the structure of the BMQ System; and 2) the process through which the system works. Information (primary and/or secondary) about a particular case company is fed into the system from where patterns are matched up against the taxonomy of business model configurations identified in Taran *et al.* (2016). In the present study, reliance has been solely on secondary data – company annual reports from 2014-2016, together with company website and other online information, e.g., corporate social responsibility reports, sustainability reports, etc. Using only secondary information requires a solid analysis structure to ensure validity and reliability. In this case, we have attempted to ensure this through multiple researcher inputs, information source criteria, and multiple crosschecks to ensure best possible alignment. This process is illustrated in the figure below:

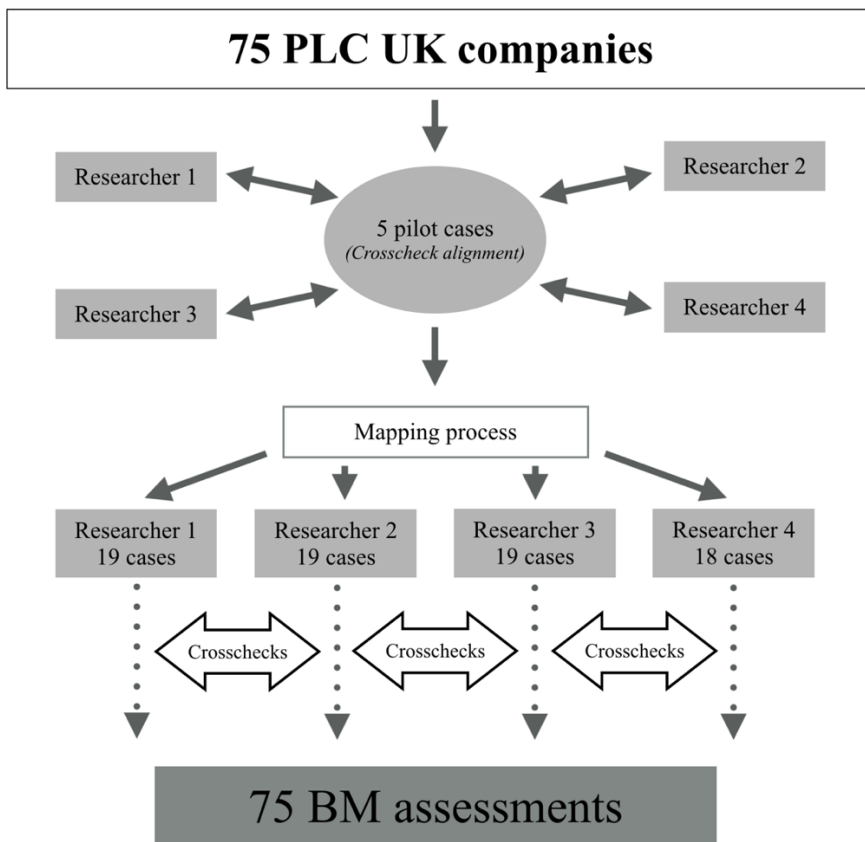


Figure 5-3. The mapping process of case companies

The BMQ System is underpinned by the 5-V framework of Taran *et al.* (2016) and the survey methodology described by Dillmann (1978), making use of a questionnaire to map the business model configurations in a consistent manner. The questionnaire contains 80 questions that concern the most important facets of a company’s business model, for example, the most important competitive parameters, the nature of the markets served, the channels used to reach the target market, and the most important strategic partners involved in business operations. To ensure the content validity of the questionnaire, the questions were developed by drawing on the business model configuration literature (Gassmann *et al.*, 2014; Linder and Cantrell, 2000; Osterwalder and Pigneur, 2010; Taran *et al.*, 2016), in order to capture the full essence of the individual business model configurations and their specific value drivers. Hence, the questionnaire was structured to fit key questions linked to each business model configuration. To guarantee criterion validity, the questions were developed

from this literature and were tested within a group of case companies that are well known for exhibiting the traits to be measured.

The aim of this second phase of the research was to identify the specific configurations of the company using the framework described above. This phase allowed the researcher to identify a list of value drivers underlying each configuration. In the schema devised by Taran *et al.* (2016), any individual company will consist of at least one configuration, and potentially several configurations, each of which will have several underlying value drivers. The ‘complete’ list of value drivers of the configurations found, in theory, would then be compared to the list of value drivers disclosed in the annual report of a specific company. This phase of the research was performed following the notion of pattern-matching according to Yin (2009).

5.4. FINDINGS

5.4.1. CURRENT DISCLOSURE PRACTICE

In order to understand current business model disclosure practices deductive content analysis was used to identify the value drivers companies reported in the section of the annual report devoted to the business model, as required by the new regulations. Previous research by Lassini *et al.* (2016) reports that while companies now disclose their business models within the annual report, a paucity of relevant information is evident in the business model section. The business model sections of the sample of reports were carefully read and information containing value drivers and/or business model elements was coded in the corresponding category. Since the coding procedure aims to identify a company’s value drivers, the analysis focused on information that focuses on the value creation process (Amit and Zott, 2001). The description of the business model should illustrate how a company’s value drivers contribute as critical success factors to the achievement of a competitive advantage. Thus following previous studies on business model disclosure, e.g., Bini *et al.* (2016, 2019) only those text-units that illustrate how an element contributes to value creation have been considered. Text-units that refer to business model in only general terms, not showing how an element contributes to generating value, such as “We can only succeed if everybody works as a team”, and only indicating management intentions and commitment have been excluded.

The following examples help to clarify how text-units have been coded:

*“Through our **suite of identity, access and security solutions** we offer industry leading capabilities to help customers find this balance.”* (Micro Focus, 2016: 5)

*“We constantly **focus on the latest technology** to ensure our products remain indispensable to customers in a continually evolving market.”* (Sage Group, 2016: 12)

The first example illustrates the role that a wide and diversified suite of solutions plays for Micor Focus. The suite of solutions is related to the “value proposition” building block within the BMC. The second example highlights that the latest technology, which is related to the “resources and capabilities” building block with the BMC is of great importance for Sage Group’s (2016) value creation activities.

A dummy variable for disclosures related to each building block has been developed. So if the content analysis shows that electronic company X has disclosed an item or more regarding their partnership, it would score a 1 in respect of BMC building block “key partners” for that year, while if they have not disclosed anything in this regard, they will score a 0.

Results

Table 5-2 below provides a heat map that illustrates the mean value for each building block disclosure over the 3-year period under investigation. In this map the green colours illustrate low level of disclosure, growing to yellow (medium disclosure) and to red (high disclosure).

Table 5-2. Content disclosed in the business model section according to building block

Building block Industry	Value proposition	Target customer	Customer relationship	Distribution channels	Key resources	Key activities	Partnerships	Revenue model	Cost structure
Electronics	0.606	0.030	0.485	0.091	0.636	0.152	0.242	0.000	0.000
Engineering	0.563	0.125	0.292	0.125	0.667	0.271	0.146	0.021	0.000
Food	0.267	0.200	0.267	0.200	0.800	0.556	0.333	0.067	0.044
Pharma	0.684	0.035	0.281	0.193	0.807	0.632	0.544	0.193	0.000
Software	0.310	0.190	0.167	0.286	0.286	0.024	0.048	0.310	0.000
Total	0.486	0.137	0.284	0.175	0.634	0.350	0.290	0.137	0.005

This figure illustrates some interesting findings regarding what UK companies disclose in the business model section of annual reports. Previous research considers completeness – the ability of a company to cover all the different building blocks related to business model – as a key feature of business model disclosure (Beattie and Smith, 2013; Bini *et al.*, 2016). In this view, good business model disclosure features a representation of all the dimensions of the business model depicted in the BMC. However, this present study suggests that business model disclosure focuses only on two areas of the BMC, namely value propositions and key resources. Only a few companies disclosed information about their target customers or revenue model, while no companies disclosed information about cost structure.

The software industry is an exception to this as 31 per cent of the companies provided a description of their revenue models. Conversely, software companies disclosed

relatively less about their key activities and partnerships. The difference might be explained by the nature of software companies, where their revenue models and distribution channels are often not regarded as prime competitive parameters. In comparison, the key activities and partnerships would be identified as important competitive parameters for software firms (Li *et al.*, 2010). In other words, disclosing such information would be at a higher proprietary cost as competitors obtain potentially important competitive information (Beattie and Smith, 2013). Overall, no companies offered a business model disclosure that covers every BMC building block and business model disclosure tended to focus on specific elements, as above. This finding is in line with previous research on business model disclosure (Bini *et al.*, 2016). This lack of a holistic view is potentially problematic for investors (FRC, 2016) who would value a full overview of the company's business model in the business model section, rather than being scattered around in the annual report, if provided at all.

Besides proprietary costs arising from enhanced disclosure, other reasons could explain these findings. In particular, the assumption that it is vital to understand all components to understand the uniqueness of a specific business model is strongly questioned as the value drivers described by companies fall into a few categories of the BMC. For example, Osterwalder and Pigneur (2010) assert that one needs to understand the customer to understand what value is created, delivered and captured. The strong focus on customers in the extant business model literature is greatly at odds with the findings of the present study that customers are scarcely mentioned in the business model sections of the sample's annual reports.

It is possible that not all of the building blocks outlined in the BMC developed in Osterwalder and Pigneur (2010) have the same importance to the value creation, delivery and capture processes of different companies. As companies rely on different value creation, delivery and capture process to achieve a durable competitive advantage, they will rely on different sets of value drivers that refer to different building blocks. Hence, a company might decide not to cover a particular aspect of the BMC when describing its business model because that area is only marginally important to its value creation, delivery and capture process. Thus, previous studies on business model disclosure such as Bini *et al.*, (2016, 2018, 2019) share a limitation related to the assignment of the same weight to all the BMC components. In light of this, the assessment of any company's business model disclosure should take into consideration the specific value drivers that characterise the value creation model of a company.

5.4.2. WHAT SHOULD BE DISCLOSED: A DETAILED PRESCRIPTION FROM BUSINESS MODEL THEORY

The previous paragraphs illustrate how the sample companies only disclose in some key areas when analysed from a BMC framework perspective. This could be

explained by the agency cost being too high or companies still focusing only on the financial value or shareholder value rather than the customer value intended by the business model concept. However, it could also be related to companies' value creation processes focusing on some key areas only. For this reason, we postulate that there is a need to understand the value creation process of an individual company, and the particular value drivers that characterise it, in order to assess business model disclosure. This is in line with the observation of the FRC that business model disclosure is vital to understanding a company's value drivers link to its strategy and KPIs. If this connection is not made, investors can find the report lacking relevance and cohesion (FRC, 2016).

As we noted in the previous section, the BMQ approach provides a means to furnish an understanding of a company's specific value drivers. The approach facilitates more precise mappings of business model configurations in accordance with the extant business model literature. The value drivers identified in the course of this exercise can then be compared with those identified by means of content analysis (as in the previous sub-section), which in turn permits an assessment of the faithfulness of the actual disclosure.

A full disclosure would entail that a company discloses all the value drivers related to the particular generic configuration that best matches its characteristics. The results of the analysis show the level of coherence between the value drivers disclosed by companies and the value drivers identified as the primary determinants of a company's value creation process. The disclosure can range from a full coherence – all the expected value drivers are disclosed – to low coherence/incoherence – none of the value drivers are disclosed. It is then possible to compare the value drivers identified through the content analysis with those emerging as characterising the value creation pattern of a company. In order to measure business model disclosure coherence with the value drivers that characterise business model configurations, a BMDisc disclosure index - has been developed. Individual indices are calculated as follows:

$$\text{BMDisc} = \frac{\sum_{i=0}^n \text{BM value driver } i}{\text{QUANT value drivers}}$$

“QUANT value drivers” are the number of expected value drivers that characterise the company's generic business model configuration according to the business model System and “business model value drivers” the number of value drivers disclosed in an annual report. Thus, the index measures the relation between all value drives expected and the actual level of disclosure. If the expected list of value drivers is 25, and the content analysis shows five value drivers disclosed it would result in a “BMScope” of .2 – that is, only 20 percent of the expected value drivers are disclosed. This analysis provides a more detailed overview regarding which value drivers are being disclosed, in line with calls for such research (Beattie and Smith, 2013), while confirming the findings of subsequent studies, e.g. Lassini *et al.* (2016) and Mechelli

et al. (2017). Table 5-3 shows the initial descriptive findings by year among the companies.

Table 5-3. Descriptive BMDisc statistics by year

	2014	2015	2016
Mean	.161	.208	.187
Median	.163	.200	.167
St. Dev.	.128	.137	.144

Overall companies on average disclosed 16.1 percent of the value drivers identified as characterising their configurations in 2014, 20.8 percent in 2015 and 18.7 percent in 2016. While this evidences a reasonably consistent level of disclosure over time, these findings demonstrate that companies fall far short on full disclosure of their expected value drivers. This is somewhat surprising as previous studies have shown that companies' business model disclosures show higher value relevance (Mechelli *et al.*, 2017) and that the current level of disclosure is high enough to understand the business framework (Lassini *et al.*, 2016). Conversely, these findings are in line with investor complaints that most companies are currently doing an inadequate job of disclosing the full business model and value drivers (FRC, 2016).

Further analysis was pursued to assess if industry or dimension play a role in value driver disclosure. The 75 companies were classified by industry class and by size, to determine whether companies from different industries are disclosing more and if size affects the level of disclosure, following previous studies that demonstrate differences regarding these criteria (Cooke, 1992; Wanderley *et al.*, 2008; Zadeh and Eskandari, 2012). Table 5-4 below shows the difference in disclosure based on industry and the following table shows the disclosure based on size.

Table 5-4. Descriptive BMDisc statistics by industry

	Electronics	Engineering	Food & Bev.	Chem. & Pharma.	Software
Mean	.166	.171	.233	.227	.122
Median	.160	.145	.250	.210	.090
St. Dev.	.114	.143	.128	.128	.018

The findings show large variations between different industries: food and beverage and chemicals and pharmaceuticals provide higher levels of disclosure, while electronics and engineering, and especially software companies, are disclosing the least. These results confirm previous findings (Cooke, 1992; Wanderley *et al.*, 2008) regarding industry effects the level of disclosure.

The results in Table 5-5 indicate that larger companies are disclosing more than smaller companies. Companies in the 3rd tercile have a mean disclosure of .259 when compared to all value drivers expected. Whereas, the 1st tercile, or smallest companies, only disclose .136 of the total amount of value drivers, which is in line with the results of previous research (Zadeh and Eskandari, 2012) regarding levels of disclosure.

Table 5-5. Descriptive BMDisc statistics by size terciles

	1 st tercile	2 nd tercile	3 rd tercile
Mean	.136	.167	.259
Median	.129	.155	.272
St. Dev.	.120	.118	.139

Value driver categories disclosed

After an initial recognition of how value drivers disclosed match the value drivers obtained from companies' classifications, the focus switches to the type of information most often disclosed by the companies in the sample. Table 5-6 below lists the ten most popular BMQ System value drivers disclosed:

Table 5-6. Frequency of value drivers disclosed

QUANT value drivers	Frequency
Expertise	82
Human resources	66
Research and development	66
Production	61

Talented human resources	61
Reliable service and products	60
Understanding customer preferences	44
Intellectual properties	42
Broad distribution	36
Production	36
Supply chain	36

The table shows that some classical value drivers are being disclosed quite often. The most frequent value drivers relate to expertise and human resources, elements often found in previous disclosure analysis regarding intellectual capital conducted research (Husin *et al.*, 2012). Similarly, value drivers regarding research and development and production are found widely reported in most annual reports. However, when these value drivers were analysed in the context in which they were found, they were rarely related to customer value, rather to more traditional financial value and kindred vague statements such as: “how our R&D are securing our future” or “innovation is a core feature in our company.” Only one of the most reported value drivers – understanding customer preferences – is related to Nielsen and Roslender’s (2015) characterisation of a business model with its strong focus on the creation and delivery of customer value. By contrast, the prevalence of traditional shareholder value matters with annual reports leads us to question what impact the new business model requirements have had.

The two previous sections demonstrate the present sample of companies analysed are disclosing at a relatively low level in general and not utilising the business model section of the annual report to provide a holistic picture of the value creation, delivery and capture process. Furthermore, this section illustrates some of the value drivers being disclosed, and analyses how these drivers are often not bound to the current context of the business model. Indeed, the value drivers disclosed are commonly found to be focused on shareholder value rather than customer value or wider stakeholder interests.

Discussion of value driver disclosure

Our findings demonstrate that companies are only disclosing limited information about their value drivers, which has not increased over the years, and the level of

disclosure varies across industries and size. This confirms evidence from previous studies of business model disclosure (Bini *et al.*, 2016; PwC, 2016). One explanation of only limited business model disclosure could be the high proprietary costs associated with the communication of information about the key drivers of value for a company. This is confirmed in the FRC (2016) report where companies state their concerns regarding disclosing their competitive advantage in the business model section. Another reason could be a lack of senior management awareness of the concept of business model and of how value drivers should be disclosed. The FRC (2016) has also previously identified how many companies think of the business model and its disclosures as another governance mechanism that no one will use. In this regard, specific guidelines by regulatory bodies may help companies to develop a more targeted and detailed disclosure, which will be relevant for stakeholders and shareholders alike, thereby demonstrating that these are not a meaningless provisions

Relative disclosure complexity might also help explain why companies are disclosing at this (low) level. Lassini *et al.* (2016) reports that some readers are able to reconstruct the business framework (or business model) from information disclosed in the annual report. This argument would be surprising, however, given that in the present study companies are found to be disclosing only 16 to 19 per cent of the total quantity of value drivers highlighted using the BMQ System. The possibility remains that some industries are easier to understand than others or that some industries are using “simpler” business models. Previous business model research does not appear to support such a view. In addition, it should not be overlooked that investors complain that most annual reports do an inadequate job of disclosing their business model (FRC, 2016), a position consistent with the results in the present study.

Broadening the discussion on the reasons why some companies disclose more than others to consider industries or size suggests additional explanations. Software companies (and to a more considerable degree small software companies) seem reluctant to disclose their value drivers. This could be due to the fact it is more important for such companies to conceal their most important asset, namely their business model, as bigger companies or competitors could readily imitate this. In this sense making a fuller disclosure could potentially mean a drop in the stock market price due to lower competitiveness. Whereas bigger companies in the food and beverage industry often have key value drivers like effective marketing, brands and human resources. These value drivers are commonly known and hard to copy for other firms, meaning that making a higher level of disclosure comes with less cost and risk compared to the smaller software companies.

Furthermore, it is interesting that most value drivers disclosed are still related to the notion of shareholder value, rather than customer value. If the value drivers disclosed still resemble the traditional ways of reporting, what impact does the notion of business model really have on the reporting performed by the companies? If the focus

is still on shareholder value or financial value, how could we expect companies to change behaviour?

5.4.3. THE RELATIONSHIP BETWEEN GENERIC VALUE CREATION PATTERNS AND VALUE DRIVER DISCLOSURE

A crucial contribution to understanding value creation patterns in relation to value drivers comes from classification schemes of business models that have been developed. These classifications are derived from real world observation, aimed at designing a map of value creation, delivery and capture models, rather than seeking to develop a share definition of a business model. It is if for this reason that Nielsen *et al.* (2017) commends the classification in the BMQ System as a tool that allows improving internal disclosures. By mapping companies on the basis of the best-matching business model configuration, managers can identify and share a common understanding of value creation, delivery and capture processes, which lays the groundwork for the design of internal business model disclosures. Nielsen *et al.* (2017) also argue that business model configurations represent the *optimal* level of abstraction to derive the value drivers that form the object of disclosure. Ontologies and frameworks such as the BMC, which represent higher abstraction-level concepts, are characterised by limited external support while the outcome of the mapping exercise reflects the particular value creation process of a specific company. By contrast, lower abstraction-level concepts – business activity systems (Zott *et al.*, 2011) and real life companies (which can also be defined “non-abstraction-level”) (Gordijn *et al.*, 2005) – are very specific and the information related to this level of analysis will be relevant to the specific company only, hard to compare and difficult to validate externally (Nielsen *et al.*, 2017).

While Nielsen *et al.* (2017) argue that their mapping tool can serve managements’ need to identify the best-matching configuration and thereby design internal disclosures, the present study highlights the opportunity for external users to use the same tool to classify companies. Once a company is classified according to a best-matching business model configuration, external users can derive the main value drivers that characterise that company. Thus, business model disclosure assessment will determine whether and to what extent the value drivers disclosed match those identified through the BMQ System. This method offers a more detailed business model disclosure and is able to overcome the limitations of traditional coding procedures based on ontologies or frameworks (Bini *et al.*, 2016, 2019), which apply the same list of items to all the companies under examination and ignore the value creation model adopted by a specific company, as previously discussed. In this regard, policy makers or company associations could look towards this or similar frameworks to help companies perform a relevant and in-depth business model disclosure in annual reports.

5.5. CONCLUSIONS

business model disclosure is the subject of an ongoing regulation process, which has introduced the requirement to communicate the business model in the UK and all European countries. The freedom that companies have in disclosing their business model can lead to different approaches – with different levels of representation of the value creation process (FRC, 2016). In order to assess whether business model representations within annual reports furnish faithful insights on the business model actually being embraced by companies, different levels of analysis were performed.

Initially a holistic analysis of the 75 sample companies' business model disclosure sections was performed using the BMC framework, informed by the business model ontology developed by Osterwalder and Pigneur (2010). This approach follows previous business model disclosure assessment attempts (Bini *et al.*, 2016, 2019) and confirms previous findings demonstrating that companies tend to disclose value drivers that are related to only a few areas of the selected framework. These initial findings are in line with other studies showing a lack of general business model disclosure in the annual report (Singleton-Green, 2010; Page, 2014; FRC, 2016). This holistic and rather abstract level of analysis avoids questions regarding specific value driver disclosure, which is difficult to address using such approach.

The above considerations contributed to implementing a new approach, which focuses on a different level of abstraction. The approach proposes the use of generic business model configurations as its level of analysis. This level of analysis presents a lower level of abstraction compared to a framework such as the BMC. We follow the taxonomy developed by Taran *et al.* (2016) and the related BMQ System database (Nielsen *et al.*, 2017) to apply this approach to verify companies' business model disclosure practices in the business model section and annual report. The resulting generic company value creation pattern relies on a specific set of value drivers. This approach enables an understanding and comparable identification of the value drivers that characterise a specific company's value creation process. Thus, the analysis in this paper involved the classification of companies using the BMQ system. Classifying companies on the basis of the best-matching business model configurations allowed us to verify whether and to what extent value drivers disclosed by a company capture a true representation of the company's business model and value drivers.

In line with previous studies (Bini *et al.*, 2016; FRC, 2016; Page, 2014; Singleton-Green, 2010), the findings reported here indicate that most companies have an inability to incorporate a business model in their annual report that conveys a faithful representation of the company on a business model/value driver level. Although there was a general low level of disclosure, differences were noted across size and industry, with larger companies disclosing more and especially small technological firms disclosing less. In most cases, the expected value drivers compared to the value drivers

actually disclosed was in the order of 20 per cent. Furthermore, the value drivers disclosed were largely disconnected from the value driver context, being conveyed in general terms. This disconnect between business model, value drivers and various other parts of the annual report pose a major issue regarding how such disclosures are understood (cf FRC, 2016).

The low level of value driver disclosure reported here may be a consequence of companies being unwilling to make a full disclosure because the proprietary costs of doing so would outweigh the gains created from signalling the full business model. Another possible explanation is that companies lack a common understanding of what the business model is and how value drivers should be disclosed. Regarding the first issue, this poses an interesting conundrum as investors and government bodies believe that business model disclosure is essential to understanding the rest of the annual report, including strategy, risks, KPIs and dividend policy (FRC, 2016). Regarding the second issue, the availability of a mapping tool that permits the identification of the main value drivers for such companies could be helpful for managers in developing a shared understanding of the business model and improved disclosures (Nielsen *et al.*, 2017), both internal and external. Following the “through the eyes of management approach” advocated by the most important regulatory bodies (AICPA, 1994), an effective disclosure should reflect information that managers use in the decision-making process (Bini *et al.*, 2019). Thus, any improvement in internal disclosure activity should in turn enhance external communication around the value drivers.

If companies or government bodies were to make use of frameworks or taxonomies such as the BMQ system, this could help elevate the understanding and use of value drivers by the companies both internally and externally. As the business model literature shows, future competition is very much dependent on finding the right business model for any company (Chesbrough, 2010). Hence, understanding the role of value drivers becomes essential both for managers, business developers and controllers internal to the company, in addition to external use in providing the most accurate and informative disclosure of a company’s value creation, delivery and capture process.

The potential of the business model to inform annual reporting, as shown in this study, presently remains far from fulfilled. The vision set out by the IIRC, FRC, EU and ICAEW to introduce business model disclosure is novel and holds potential to improve and invigorate reporting with key information about companies’ value creation strategies. However, as long as companies are reluctant to disclose their key value drivers and their business models, fully and coherently, this potential will continue to be unrealised without further action from the government bodies or willingness by the companies.

5.5.1. FURTHER RESEARCH

The topic of business model disclosure clearly merits further investigation, both in academia and by the governing bodies. Research should focus on whether the introduction of mandatory business model disclosure is making a relevant contribution to the operation of market, or if the representation and relevance remains so low that information found elsewhere is enough for the readers to establish the value creation process of the companies. The present paper also demonstrates the worth of further exploration not only of the representation of the business model disclosure and attendant value drivers but also the coherence that exists between such disclosures and management's own perceptions in respect of a company's value drivers. Finally, investigations should be carried out to identify the cohesion between the companies' understanding of business model reporting, the concept of the business model and requirements made by standard-setting bodies. This would identify the presence of potential misconceptions that could be addressed by further development of existing guidelines.

CHAPTER 6. DYNAMIC CONTENT ANALYSIS – A REFLECTION AND APPROACH TO PERFORM CONTENT ANALYSIS IN INTELLECTUAL CAPITAL

This chapter depicts a new way forward for content analysis in intellectual capital research with the business model as a frame of reference. The chapter describes and reflects on the analysis methods enabled by the BMQ. By addressing common issues and shortcomings concerning content analysis in intellectual capital, the paper presents new solutions to this often criticized method. In doing so, the paper draws on the fundamental notions on content analysis, from which a new construct is formulated: dynamic content analysis. Through the notion of “dynamic”, the paper emphasizes the need for theoretically-grounded analytical constructs to improve three primary aspects of content analysis in intellectual capital, namely: methods of data collection, more precise analytical inferences and better comparability between data. Although intellectual capital is the predominant focus of this paper, the paper builds upon ideas presented in the second paper. In this way, it extends the concept of business models into the field of intellectual capital with mutual benefits to both.

6.1. INTRODUCTION

Originally perceived as a promising method for research on intellectual capital disclosure (ICD), content analysis (CA) has recently experienced a gradual weakening in its foundation within this field. Due to common issues of validity and reliability, and thus limited potential to provide generalizable findings, CA in intellectual capital (IC) research has received substantial criticism in recent years (see Abeysekera, 2006; Dumay and Cai, 2014; 2015; Guthrie *et al.*, 2004). In this chapter, we attempt to answer these critiques by suggesting a more dynamic approach to CA and thereby provide new insights into CA of IC.

Diverging positions on CA appear to exist among IC researchers, with common concerns towards validity and reliability (Dumay and Cai, 2014). The ongoing use of potentially biased data sources, along with an inconsistent application of ICD indexes/frameworks and coding schemes, are some of the factors typically highlighted that impact on the credibility of CA ICD research. In this chapter, and in line with Dumay and Cai (2015), we further emphasize how to improve the use and understanding of CA. In alignment with Dumay and Cai (2014), we argue that CA within IC research holds great potential, but currently seems to be marooned in what could be labelled as an existential crisis, where alternative measures are necessary in order to build a stronger analytical constructs. This chapter will address some of the above mentioned critical issues, while attempting to pave the way forward for CA in IC research. Through specific data collection methods and analysis structures, we propose a more rigid, yet flexible, research design that we refer to as ‘dynamic content analysis’ (DCA).

In this chapter we will explain in detail what DCA is and how this can potentially aid IC and other researchers in building a sound analytical construct for collecting and understanding data, while reflecting upon the general application as well as the specific context from which the data emerges. In this way, we intend to strengthen reliability and validity. We will do this by introducing a research project, Business Model Quant (BMQ), and exemplifying the DCA approach through one of latest additions to reporting practice, namely the requirement to disclose a company’s business model (FRC, 2014, Guidance on the Strategic Report, paragraph 7.12). The underlying basis for this turn to dynamic approaches draws on over five years’ work trying to understand the use of business models in companies and the context of the firm, using CA as the primary method.

6.2. BACKGROUND

6.2.1. SETTING THE SCENE

Depending on the research, variations of CA can be applied to best suit the available data and the overall aim. Content analysis remain one of the most important research

techniques in the social sciences, providing a structure for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use (Krippendorff, 2004). Through predefined coding procedures, CA enables the researcher to extract meanings from readily available data in the form of texts or images. The strength of CA can be ascribed to its ability to balance the advantages of quantitative analysis with qualitative interpretation (Philipp Mayring, 2004). The general approach prescribes to be systematic and objective in order to quantify the phenomena and acquire insights to the context (Krippendorff, 2004).

At its core, CA can be traced back to the 18th century, hence, it has a long history as a research method. In the early beginnings, researchers kept methods separate by using content analysis for either qualitative or quantitative studies (Berelson, 1952). This distinction changed over time, while later developments in CA spurred an approach commonly referred to as “quantitative analysis of qualitative data” (D. L. Morgan, 1993). This approach implies coding of text into specifically defined categories, which can be assessed and eventually described through statistical analysis. While the concept was heavily debated at the time, quantitative CA experienced a golden age during the middle of the last century. More recently, qualitative CA has gained an even stronger foothold due to an increased recognition within fields such as marketing research (e.g. Silver and Wrenn, 2013) and health care (e.g. Hsieh and Shannon, 2005). Such developments are believed to be contributing factors to the increased application and popularity of CA (Nandy and Sarvela, 1997).

On a more general level, one may assume that CA has reached a high level of maturity and cemented itself due to its long history and widespread usage. While this might be the case in some fields of research, things seem to have progressed differently in others. Although CA made great advancements over the course of the past decades, the imaginary analytical potential is often far ahead of what can actually be done, hence, CA is still extensively debated in some areas, because the very nature of the method still presents challenges to overcome (Dey, 1993). The extent of this issue varies between different research fields, but it appears to be very prominent in ICD research, where the general stance towards CA has gradually transitioned into a more critical manner. According to Dumay and Cai (2014), CA articles investigating IC increased on average prior to 2007, but showed an overall decline after this. High-ranked accounting journals, such as *Accounting Auditing & Accountability Journal*, *Accounting and Business Research*, *British Accounting Review*, and *European Accounting Review*, have tended to refrain from publishing articles on CA investigating ICD (Dumay and Cai, 2014). Although some IC researchers were inclined to see the opportunities offered by CA, it appears to have failed to establish a solid foundation, which has generated a growing scepticism towards its future role. Nevertheless, the initial promise of CA potentially holds great value to the future of IC research, if these issues can be resolved.

In IC research, CA historically has been deployed to extract meanings from various sources of information, for example corporate reports, in order to assess and value businesses, as well as to develop classifications for disclosures (Baboukardos and Rimmel, 2016; Gibbins *et al.*, 1990; Hassan and Marston, 2010; Nielsen *et al.*, 2015). To emphasize the links between IC and CA, we gravitate towards the explanation provided by Krippendorff (2004), in which CA can be described as a method applicable for analysing data from a phenomenon and the attributes of said phenomenon within a specific context. Such attributes are typically found through communications, letters, symbols, messages and so on That reveal properties of their producers and potentially the impact on the receivers and/or carriers (Krippendorff, 2004). If we go by the definition from Krippendorff (2004), “Formally, content analysis is a research technique for making replicable and valid inferences from data to their context.” Contemplating these properties, it makes sense that CA initially surged in popularity in IC research, particularly given its promise to induce comparability and transparency through the analysis of public company documents (Beattie *et al.*, 2004; Beattie and Thomson, 2007). Yet, no solid assimilation has been achieved at this point, which raises the question as to why this could be. By no means is this a simple question to comprehensively answer. Nevertheless, studies have already been conducted to uncover some of the underlying issues associated with the application CA in ICR.

In this regard, we primarily gravitate towards recent investigations conducted by Dumay and Cai (2014) and Dumay and Cai (2015), as they draw conclusions based on in-depth literature studies of 110 article using CA to analyse ICD. To outline the challenges of ICD CA, Dumay and Cai (2015) highlight some contributing factors, which they describe in the following critique points: research question and research context, context and analytical constructs, reliability, inferences and validity.

Reflecting upon the findings of Dumay and Cai (2015), we see that issues potentially occur on multiple levels of ICD CA, including data collection, data analysis and eventual inferences. Inspired by Dumay and Cai (2015) and (Krippendorff, 2004), the next section of this chapter will propose a framework for advancing more dynamic CA. However, first we will give a brief introduction to what we mean by DCA.

6.2.2. DERIVING DYNAMIC CONTENT ANALYSIS

This section defines DCA and how we derived this approach to provide a new theoretical frame to IC research, namely the concept of business models.

The term “dynamic” essentially describes a more flexible and yet rigorous approach to CA, hence, referring back to the above highlighted issues in ICD CA concerning data collection, data analysis and the subsequent inferences. We add the notion of “dynamic” as a twofold adjective to describe how we intend to improve both data collection and data analysis of ICD CA. Dynamic properties in the context of CA

applies to several levels; first and foremost, “dynamic” applies to way in which the analytical construct (or coding scheme) (Krippendorff, 2004) is developed for analysing the data. Dedicating the time and effort to develop a sound analytical construct also enables enhanced dynamic properties to utilize data on multiple levels and the flexibility to utilize more sources of information. By supporting the use of multiple source data collection, which could be referred to as data triangulation, the method aims to strengthen both validity and reliability. As demonstrated later in this book chapter, these principles support the creation of more in-depth findings, but also allow for better generalization in regards to the given context. Therefore, referring back to the need for a more innovative approach to ICD CA, as called for by Dumay and Cai, (2015), we embrace a new and unexplored theoretical frame to IC research in form of the business model.

One of the newer additions to IC research is the concept of business models (Beattie and Smith, 2013), which has been pushed along by standard setters making it mandatory to disclose business models in company annual reports (FRC, 2014). The proposal by the FRC requires companies to disclose the business model in the following manner: *“The description of the entity’s business model should set out how it generates or preserves value over the longer term, and how it captures that value. It should describe what the entity does and why it does it. It should also make clear what makes it different from, or the basis on which it competes with, its peers.”* (FRC, 2014, Guidance on the Strategic Report, paragraph 7.12). The concept of business model disclosure offers new opportunities for ICD and the business model literature correspondingly strives to frame value generating activities in companies (Magretta, 2002). However, the focus of the business model revolves around customer value creation, followed by the subsequent value generating activities. Led by Beattie and Smith (2013) and Nielsen *et al.* (2017), we see the business model as a potential to improve the identification of core value creating activities and potentially increase comparability. The question is therefore: how might we analyse this, using content analysis, and still strive to deliver valid and replicable data to the context? Different studies have shown different levels and approaches to use not only CA but also to interpret the introduction of mandatory disclosure of business models (see Bini *et al.*, 2016; Lassini *et al.*, 2016; Mechelli *et al.*, 2017). However, nobody seems to agree on ways to measure business models, which replicates issues of precision and consistency among the general findings of ICD CA (Dumay and Cai, 2014).

Reflecting on the above critiques of CA, the new research area of business models within IC, including the annual and integrated report (Beattie and Smith, 2013), we suggest an approach to quantify a company’s business model. This quantification allows for more rigor in terms of the context of the annual/integrated report and further ensures that relevant data is included. However, although the approach essentially composes a quantification, it simultaneously relies on qualitative methods in terms of design and inputs. By adopting quantitative principles, here in the form of a questionnaire, we propose a more extensive and rigorous approach to designing a

coding scheme. While CA typically examines pre-specified texts through a coding scheme containing certain words and synonyms, this chapter contrarily proposes a coding scheme based on predefined questions. We can therefore distinguish DCA from CA in IC research by stating: instead on looking for words, researchers should look for answers to questions.

In the endeavour to elaborate DCA, we initially developed a research project titled Business Model QUANT (BMQ), framed through the business model, with the aim to capture essential value creating components and structures in companies. These observations should be represented in a way that would allow for better comparability and generalization. With this focus, we draw parallels to IC while reflecting upon the applied framework and its capabilities to identify essential value drivers. Previous papers connected to this chapter have already been published, including: Taran *et al.* (2016) and Nielsen *et al.* (2017). So, while this chapter will attempt to cover this background briefly, we refer to these papers for additional background knowledge.

The BMQ project is seen as a multi-disciplinary study that merges the fields of IC and business models supported by a purposely developed software platform (BMQ) comprising a relational database on business models and a questionnaire-based data collection tool. At this stage, multiple iterations of the platform have been completed, most of them in a rather experimental fashion, implicitly following a mixed methods approach driven by continuous abductive reasoning. Thus, we are able to present a structure that we believe suggests new ways forward for CA ICD research. Due to its complexity, the study is currently expected to extend years into the future, whereby we intend to add further improvements and discoveries. However, with this chapter we take stock and present our current findings, while providing an outlook towards future research paths. Here, the focus is on the main events during the development process and elaborating on these.

6.3. DESIGNING A DYNAMIC CONTENT ANALYSIS

This section will elaborate an example of performing a more rigid yet flexible design to performing DCA. However, before diving into the details, we find it necessary to shortly draw the attention towards the framework for “original” CA as depicted by Krippendorff (2004, p. 29-30) comprising six consecutive steps:

Table 6-1. A framework for content analysis (Krippendorff, 2004)

1	A body of text, the data that a content analyst has available to begin the analytical effort.
2	A research question that the analyst seeks to answer by examining the body of text.

3	A context of the analyst's choice within which to make sense of the body of text.
4	An analytical construct that operationalizes what the analyst knows about the context.
5	Inferences that are intended to answer the research question, which constitute the basic accomplishment of the CA.
6	Validating evidence, which is the ultimate justification of the CA.

Drawing on Krippendorff's (2004) framework, this section initially introduces how to design a DCA and focuses on the first three parts in Table 6-1. However, as we argue later, the abductive approach of this research, makes it necessary to go back and forth between the steps in Table 6-1. The key insights to gain from this section concerns the initial understanding of the empirical context and available data, formulating and refining the research question and analytical construct, and further strengthening the data collection process. The second part of performing the DCA is closely associated with the latter three steps in Table 6-1. Performing the DCA elaborates ways in which the data collection and coding are performed.

6.3.1. INITIAL RESEARCH AND RESEARCH QUESTION

Initially turning attention towards data availability, we propose that two critical aspects should be highlighted, namely: the quality of data and the rigor of the coding scheme. While representing somewhat equal importance, different issues can be discussed respectively. In line with Krippendorff (2004), we strongly advocate for research driven by a set research question. This might seem fairly obvious, but Dumay and Cai (2015) note that an extensive number of CA ICD studies seem to originate from the availability of a certain data source. So, while we recognize the "occasional inevitable circumstances" of research, we concurrently emphasize how such an approach automatically limits the findings.

According to Dumay and Cai (2015), most ICD CA studies lack rigor due to the absence of a concrete research question additionally supported by one or more explicitly formulated hypothesis. While leaning against a well-defined research question seems expected, this review implies that merely a fraction of ICD CA studies actually do this. The extent of this matter likely refers back to the common premise in ICD CA research concerning the availability of texts, which tends to define the research objective and not vice versa (Dumay and Cai, 2014, 2015; Krippendorff, 2004)

Experience from BMQ

We agree with Dumay and Cai (2015) on the importance of a driving research question, especially as this fits the original premise of CA defined by Krippendorff (2004 pp. 32-33):

1. Is believed to be answerable (abductively inferable) by examinations of a body of texts.
2. Delineate a set of possible (hypothetical answers among which analysts select.
3. Concerns a currently inaccessible phenomenon.
4. Allows for (in)validation – at least in principle – by acknowledging another way to observe or substantiate the occurrence of the inferred phenomena.

Krippendorff (2004) further argues that the research question should be perceived as a target of the analyst's inferences from available texts, hence, several possible and initially uncertain answers can be derived. As mentioned previously, deriving the research question is no easy task and will more often than not result from some form of abductive process. This process entails either formulating the research question first (deductive) or identifying the data and then formulating the research question (inductive). However, to define our research question we used both theoretical papers to identify potential research gaps and what data we believed would be available to iterate back and forth. So, in the endeavour to collect comparable data on business models, we therefore proposed the following research question:

How can business models be described and represented in a structure (possibly software), to enable a more rigorous identification of value drivers through secondary data?

6.3.2. ANALYTICAL CONSTRUCT

With this set research question, we went on to address the analytical construct and the subsequent coding scheme. The coding scheme should provide a comprehensive and well-defined structure that allows for continuous abductive reasoning throughout the analysis process (Krippendorff, 2004). Thereby, and perhaps arbitrary to traditional CA, the coding scheme should not force or/and restrict the researcher to just look for specific words, but rather assist the researcher to abductively reason through well-defined concepts and terms (Dumay and Cai, 2014). Coding schemes based on specific words and relating synonyms can be effective, but the researcher risks overlooking valuable information (Beattie and Thomson, 2007). We especially believe this to be the case in regards to ICD, since representation in publicly available

documents is simply not consistent. Conducting a successful CA study on ICD within a specific industry can, therefore, not be achieved through the same type of data source (for example, annual reports).

The coding scheme must be able to accommodate and encourage the use of multiple sources. In other words: the researcher should have flexibility to utilize different sources in order to abductively reason according to the predefined questions. This speaks to the dynamic capabilities of the coding scheme, discussed later. Furthermore, you could raise the question as to how well most ICD indexes allow for comparison between individual “data points”, for example two companies might disclose somewhat similar IC, but this does not necessarily imply that they share the same business model configurations. This highlights, again, that IC studies generally need to adopt a more innovative mindset to investigate new avenues of research instead of continuously analysing the same theories, variables and frameworks using similar data sources (Dumay and Cai, 2014; 2015). In this case, the business model seems an especially valuable addition as it offers more comprehensive frameworks and classifications schemes/typologies.

Experience from BMQ

The concept of the business model does not offer a theory per se. Although representing a continuous subject for discussion, a broad consensus does seem to exist in terms of the composite elements of the business model. So while a multitude of more or less known frameworks have been published, the works of Osterwalder *et al.* (2005) leading to the Business Model Canvas (BMC) (Osterwalder and Pigneur, 2010) seem to dominate the research field. Because of this, the BMC was chosen as the appropriate framework for this research. With its nine so-called building blocks, the BMC defines generic key areas of a business model, whereby it enables a more systematic approach to business model assessment. The BMC composes a very open and simplistic construction, which translates to high flexibility and broad application. However, it relies heavily on the capabilities of the user (Nielsen *et al.*, 2017b), which may be perceived as a drawback. So, although the BMC was chosen as an underlying structure for our coding scheme, we were also aware of the potential obstacles to increasing validity and reliability. If this analysis of business models was to inform better approaches to CA, it would require a different and more detailed representation of the business model.

To accommodate this concern we initially gravitated towards the notion of business model archetypes as an underlying level of abstraction, as depicted by Massa and Tucci (2014). Suggesting six consecutive levels of abstraction, Massa and Tucci (2014) identifies business model narratives and archetypes as the highest levels, followed by ontologies and frameworks (Johnson *et al.*, 2008; Osterwalder and Pigneur, 2010), meta-models and finally activity systems as the lowest level (Johnson *et al.*, 2008; Osterwalder and Pigneur, 2010). Advancing this, Taran *et al.* (2016)

suggest a revised version in which the notion of business model configurations are added as a further specification of the meta-models. Based on this notion, Taran *et al.* (2016) further develops a comprehensive list of 71 business configurations, which they essentially break down into value generating components to devise a classification scheme. Taran *et al.* (2016) refers to these components as ‘value drivers’.

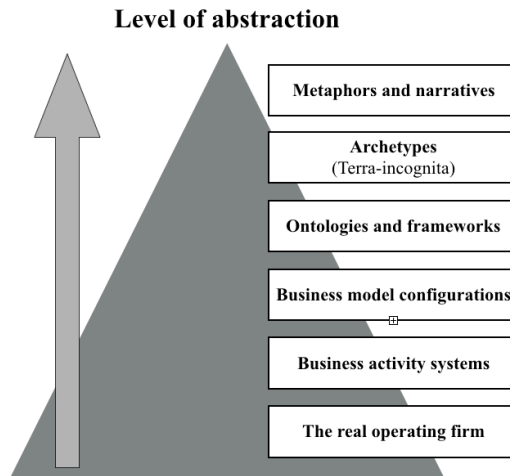


Figure 6-1. Business models at different levels of abstraction from “reality” Taran *et al.*, (2016) inspired by Massa and Tucci (2013)

On this basis, we intentionally set out to extract all value drivers from the typology by Taran *et al.* (2016). These thus constitute the basis of our coding scheme constructed as a questionnaire. Using the value drivers assisted the process of defining and operationalizing the right variables. However, this process resulted in multiple subsequent iterations involving coding, system design and testing, whereby additions and deletions in the list of value drivers were made.

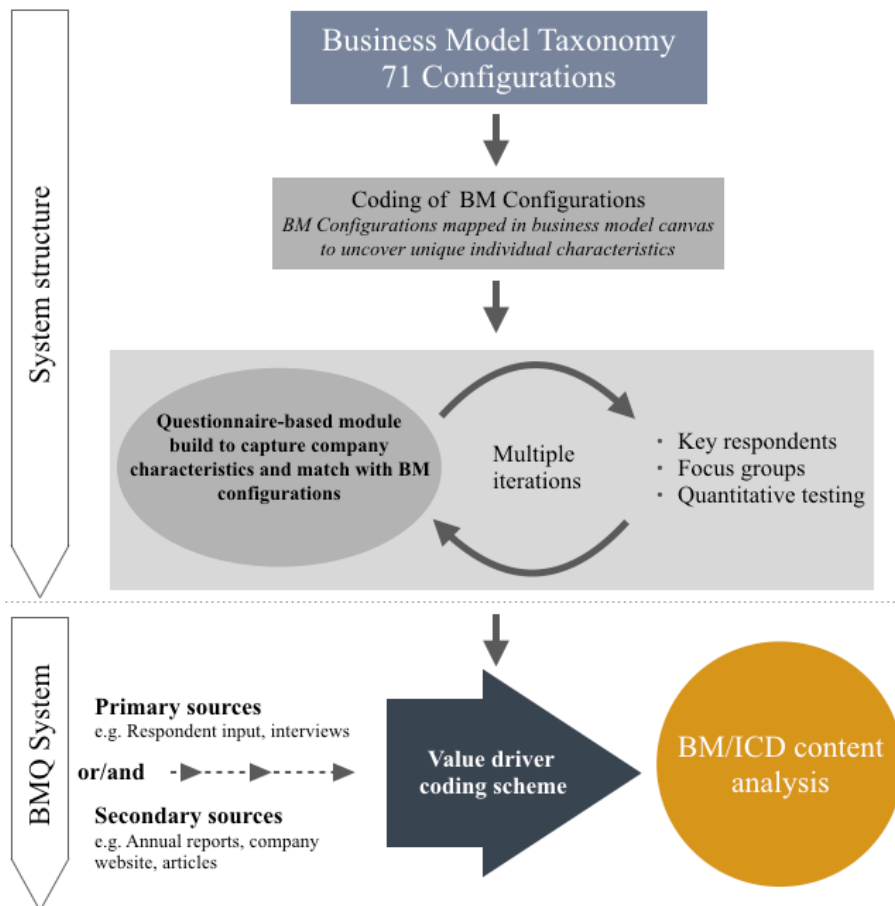


Figure 6-2. Developing a dynamic content analysis – an example.

6.3.3. REFINEMENT OF THE ANALYTICAL CONTRACT

Our development and design on the BMQ is a process of refining the analytical construct. As argued by (Steenkamp and Northcott, 2007), it is useful to adopt previously used categories but also to modify existing categories to improve accuracy. More often than not, this is done within the same analysis, making the results difficult to compare and distinguish from each other (Dumay and Cai, 2014). For this reason, we propose to separate the two approaches (where possible), to allow for the generalizability of the common/most used framework and highlight the purpose driven coding-scheme.

Experience from BMQ

From this starting point, we eventually conceptualized the use of business model archetypes and their individual components to add a greater depth to the BMC. In this instance we gravitate towards the business model typology by Taran *et al.* (2016), as this is perceived to represent a comprehensive collection of archetypes. Taran *et al.* (2016) present 71 business model archetypes and appertaining empirical cases, derived from a widespread collection of publications on the subject. Intentionally, this typology is believed to ensure a much better coding scheme as this could help us to define and operationalize the right set of variables for our coding scheme.

In summary, the development of the analytical construct took place on two levels. The first level centered on ensuring generalizability using the most known framework in the field. In our work this is the BMC and in the case of ICD this could be Guthrie and Petty's (2000) framework. The second level focused on ensuring the precision of the research and including the context to make sure the construct fit the purpose. We argue that adopting the configuration would allow us to go in depth with the business model of companies and further provide an opportunity for deeper comparison, compared to using the BMC alone.

6.4. CONDUCTING DYNAMIC CONTENT ANALYSIS

6.4.1. DATA COLLECTION

One of the main critiques of ICD studies is that they only collect data from the annual report and often only from specific sections addressing IC (Dumay and Cai, 2014). Although the annual report is a readily available medium, it still poses issues of skewed information as it does not necessarily reflect the reality of the firm (Abeysekera, 2006). Based on these circumstances, (Guthrie and Abeysekera, 2006) underline the importance of using multiple data sources, both internal and external, comprising data collected through interviews, field observations, case studies, surveys and experiments.

Experience from BMQ

The possibility of utilizing multiple sources is also for a key feature of the BMQ project. When identifying data collection sources, it is important to incorporate how to satisfy the research questions and the original objectives. Building on a questionnaire, the coding scheme developed in the BMQ allows for multiple collection techniques. Diverging from Krippendorff (2004) and his original notions of developing coding schemes, we imply that parallels can be drawn to the structure of a questionnaire. Done properly, the questionnaire constitutes a strict guide that will aid the researcher to find proper answers to certain questions through abductive reasoning. This way, the researcher has freedom to not only choose between different information sources but also piece together information to find appropriate answers.

Furthermore engaging multiple researchers, depending on the setting, can have either a positive or negative impact in CA. In any case, consistency is critical, hence, traditional coding schemes potentially leave room for subjective interpretation by the individual researcher. This issue is also addressed in DCA, which is illustrated by outlining our proposed data collection method.

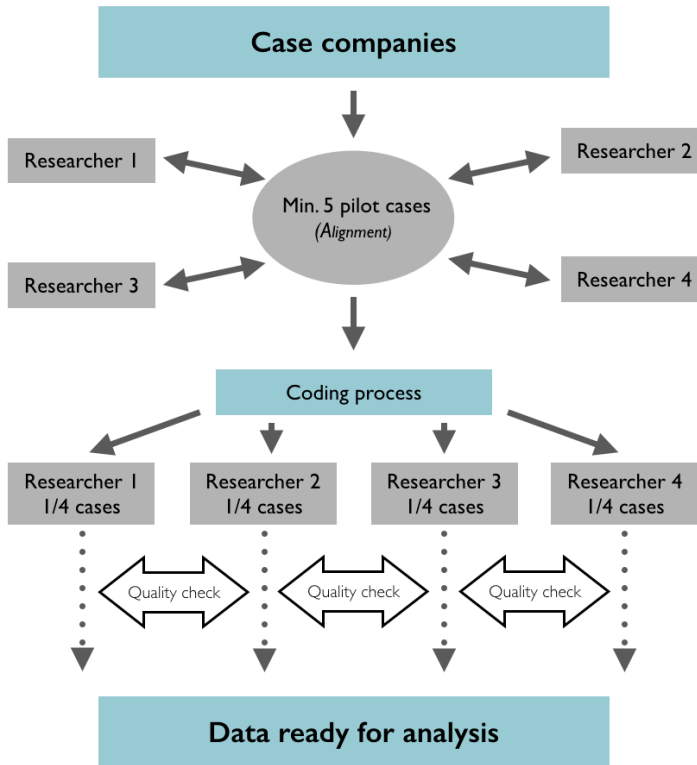


Figure 6-3. Data collection methods for DCA

As illustrated in the figure above, the questionnaire not only aids the researcher in collecting data, it also allows for easier quality control between multiple researchers. Although interpretational variations cannot be eliminated altogether, we found the initial alignment exercise to be quite valuable as relative few differences were seen during later performed spot checks.

During some of the later iterations we learned, through testing, how the questionnaire performs as the underlying basis for a qualitative guideline for interviews, for example with companies or stakeholders in the field.

A solid analytical construct can be used in different ways. This combination of data or data triangulation becomes valuable when performing the data analysis. Furthermore, the aim of the research essentially dictates the different collection techniques, meaning the questionnaire would be regarded as more rigorous and reliable. In comparison, the qualitative techniques, such as interviews, could be more in-depth and capture things otherwise overlooked.

6.4.2. DATA ANALYSIS

A further important aspect to address in this chapter concerns the data collection. Dumay and Cai (2015) dispute the inconsistency in the application of frameworks within ICD CA. Although the use of ICD indexes is common within many ICD CA studies, they generally stem from various sources, making comparisons between ICD studies difficult. Because of this, Dumay and Cai (2015) suggest that limited concern to this matter seems to exist among CA ICD researchers. However, while the inconsistent use of frameworks might reduce comparability, we also argue that the majority of ICD frameworks are not necessarily geared towards higher levels of comparability. This is where context becomes important. Without taking context into account, comparability is weakened, which also limits the contribution to theory. Several CA ICD studies attempt to embed context into their studies, but with regards to their general approach, results often remain unaltered in term of comparability. According to Dumay and Cai (2015), many CA ICD researchers resort to modification of existing ICD indexes to embrace the very context of their own study, effectively resulting in a “unique” framework with limited application to other settings.

Experience from BMQ

As the amount of data in the BMQ was fair extensive, an automated software system was built to assist the analysis. While unable to perform actual analysis, the software merely provided a foundation for data collection and storage. Conveniently, we refer to this as a software enabled coding scheme. Essentially comprising a simple relational database, the software contain all 71 business model configurations from the typology developed by Taran *et al.* (2016) and the appertaining derived value drivers. This simple setup enables a tight link between the data collection and the analytical construct, hence, it offers a much more focused analysis.

We emphasize this by using the business model as a frame of reference, whereby we argue that the value drivers of a company are primarily determined by and aligned towards the value proposition to the customers. Again, the business model constitutes the value drivers or IC for that matter. From this standpoint, more depth can be added to ICD research, particularly in contrast to traditional ICD comparisons across, for example, markets, industries and regions as described by Dumay and Cai (2014, 2015). By this, we imply that measuring and/or comparing the ICD of two companies within the same industry using different business models potentially offers very little

explanatory value simply because they tend to be geared in different ways to function. Assessing ICD on the basis of the business model, however, allows for more direct comparison between individual data points as well as between studies. The latter is a response to the observation made by Dumay and Cai (2015), in which they highlight the problem of low levels of inter-study comparability between ICD CA studies resorting to a modified ICD index.

When using the analytical construct and employing one or several of the data collection techniques, the data can be uploaded to the system and will yield both a general analysis based on BMC and a more in-depth configuration model. We do acknowledge that not all people have the time/abilities to develop a software enabled database to do the validation.

During the iterative process of developing the database, “expert researchers” were included to validate the findings. By this, we intended to secure the analytical process and ensure all researchers understood the analytical construct. When handling larger samples, we have always made sure to cross align the researchers performing the data analysis, both on the general level and more in-depth level. This could be performed choosing several different coefficients (see Dumay and Cai, 2015) depending on the nature and approach of the analysis.

Another aspect worth emphasizing concerns the different options of performing the data analysis when the project has gone through a rigorous, abductive and interactive “enabling phase”. Taking the time to develop a construct that works both on a general and detailed level enables more potential comparisons and findings. For instance, using the generalizing BMC framework allows for the comparison of similar studies, which have adopted the same framework. In addition, the use of the detailed configuration framework allows for a more in-depth analysis of what lays behind the business models and how this can be understood in the context of mandatory disclosures.

6.5. CONCLUSION

In this chapter, we have given recommendations on how to address some of the key critiques found in the literature on ICD CA. Dumay and Cai (2014; 2015) highlight how CA has entered a “crisis” within IC research. Drawing on a larger research project, we develop and define a modified approach to ICD CA, which is referred to as dynamic content analysis (DCA). In this chapter we explain the relevance of this approach through comparison against traditional CA and reflect on our learnings from the overall research project. Throughout this chapter we pointed out some of the key learnings from adapting DCA, which are summarized below.

Krippendorff (2004) and Dumay and Cai (2014; 2015) both point out the importance of developing a sound and relevant analytical construct including a coding scheme.

The choice to approaching this through an inductive or deductive approach has spurred some debate among ICD researchers. In line with Krippendorff (2004), we advocate for abductive reasoning to make sure the research question, initial data overview and analytical construct fits the intended purpose. Moreover, we emphasize the value of investing time and effort in this iterative phase since it constitutes the “pillar” on which the quality of findings will rest. In proposing DCA, we demonstrate how a well-thought analytical construct consequently enabled the researcher to perform data analysis on different levels to strengthen both validity and reliability.

Another overarching critique of many IC and ICD relates to the use of unilateral sources, for example annual reports (Abeysekera, 2006; Dumay and Cai, 2014; 2015). In agreement, we respond to this critique by illustrating how a well-developed analytical construct could not only enable different sources but also utilize different data collecting techniques. Our approach allows different sources, such as archival (annual reports, webpages, news), employees, owners, analysts and other stakeholders, to contribute data. This can be collected through different techniques, such as questionnaires, interviews or similar, and then used in a CA of the data. Drawing on multiple sources and multiple data collection techniques improves the validity and reliability of the process and findings.

Another weakness found in many ICD studies concerns the lack of generalizability when using different analytical constructs (Dumay and Cai, 2015). In our example, we show how a well-developed analytical construct enables both a generalizable analysis as well as an in-depth context specific analysis. This is done through developing an analytical construct that build on the most known, cited and used framework in the field, that is BMC in the business model field or Guthrie and Petty’s (2000) framework in ICD. This allows for the findings to be compared with similar studies and improve the generalizability. However, it is still important to allow for the context and in-depth analysis of a specific study, which could be done as a second part of an analysis to enhance the validity of the study. This would enable the researchers to modify the framework to fit the context; for instance, in our example we adopt the notion of configuration to give a deeper and more rich analysis of companies’ business models.

Our final recommendation is to take up the business model as a new unit of analysis, which could enable researchers to make more cross checks of companies’ ICD, when comparing companies with the same business model rather than solely comparing companies within the same industry. However, this is a suggestion for further research.

CHAPTER 7. BOOSTER CARDS: A PRACTICAL TOOL FOR UNLOCKING BUSINESS MODEL INNOVATION⁶

The chapter refers back to the chapter 2 of this dissertation, specifically the developed 5V framework. The paper elaborates further on the contribution to business model innovation and investigates the implications of implementing business model configurations in the process. For this purpose, we develop so-called ‘stimulus cards’, intuitively presenting the configurations from the classification scheme developed in the first paper. While other similar stimulus cards already exist, this paper emphasizes the applied aspects in which teaching is used as backdrop to develop an analogy-based approach to enhance the teaching process and evaluate student motivation. The paper lays the groundwork for further research on business model configurations and their potential contribution to innovation processes.

⁶ The chapter is co-authored by Peter Thomsen, Jesper Sort, and Kristian Brøndum. The chapter is published as a paper in *Journal of Business Models* (2019), Vol 7, No. 3, pp. 131-142

7.1. INTRODUCTION

Many different fields of teaching and researching business models (business models) and business model innovation (BMI) exist. The diversity of the research fields raises questions on how to teach BMI to students and enable them to unlock the complexity of applying BMI. Massa and Tucci (2013) suggested splitting the notion of BMI into two categories: business model design and business model reconfiguration. The first is related to inventing new businesses and business models, whereas the latter concerns restructuring and generating new ideas within existing business models. The notion of BMI (both designing and configuration) is a challenging and complicated art (Teece, 2007). Although research within this area has been quite heterogeneous, Wirtz and Daiser (2018) derived a generic seven-step BMI process in their systematic review, namely analysis, ideation, feasibility, prototyping, decision-making, implementation, and sustainability. This paper will contribute by identifying a way to enable BMI in teaching, especially in the earlier stages of BMI, such as ideation.

When addressing the issue of teaching BMI, one needs to understand some of the inherent barriers in addressing innovation. The typical barriers that teachers face are related to the dominant logic and level of capabilities of their students. The dominant logic comprises how the firm creates and captures value, which can be difficult to assess due to prejudice and other subjective matters (Bettis and Prahalad, 1995; Chesbrough, 2003). The level of capabilities in this sense refers to the restrained repertoire of a person's ability to see new ideas (Pisano, 2006). These issues are, in our experience, common when students try to develop new business model ideas in a BMI process. Often, the restraints are less challenging when addressing new business designs but become more complex and challenging when doing business model reconfiguration (Luttgens and Diener, 2016; Massa and Tucci, 2013; Teece, 2007).

Thus, teachers often must overcome these barriers of underlying assumptions in the dominant logic and restrained capabilities. If not appropriately addressed, the result will be a limitation of the potential variety of inputs to the BMI process (Rumble and Minto, 2017), as students will often replicate and conform to the known norms (e.g. Jong and Dijk, 2015), arguably compromising the idea of teaching innovation in the first place. Nonetheless, there are several techniques to overcome these barriers, enabling the teacher and class to stimulate novel and creative ideas through BMI.

In the literature, there have been various suggestions on how to improve the ability to innovate business models. One of the topics concerns the idea of using experiments to generate different solutions (Ahokangas and Myllykoski, 2014) and ultimately identify the optimal solution (Chesbrough, 2010). However, this quickly turns into a

‘catch-22’ paradox⁷ because the experiment designs are often restricted by the dominant logic present in the individuals and by their (limited) capabilities. This is why we have invented a set of booster cards to help students create experiments and develop better and more original business model designs and business model reconfigurations. In line with the work by (Smith, 1998) on creative triggers, we intended the booster cards to act as a stimulus to amplify the idea generation process. Smith (1998) distinguished between the following three types of stimuli:

- Concrete stimuli (Higgins, 1994): Use physical items or pictures in idea generation sessions.
- Related stimuli (VanGundy, 1988): Provide stimuli that are connected to the problem-solving task.
- Remote stimuli (Rickards, 1974): Provide stimuli that are unrelated to the problem-solving task.

The booster cards essentially combine all three types but are mainly based on related and remote stimuli. We do this by only providing topic-specific stimuli (hence, the business model configuration typology), while simultaneously forcing the students to assess and reflect upon the individual and sometimes unrelated business model configurations. The latter refers to business model configurations that immediately appear illogical or distant to the case at hand. In other words: the booster cards will constitute ‘provocations’ to enable the students to think ‘outside of the box’.

Converting business model typologies into playing cards is not a new invention (e.g. the BMI Lab at St. Gallen University developed BMI Pattern Cards; see Gassmann *et al.*, (2014). However, we did not find these cards comprehensive to our satisfaction in terms of typology and categorisation. A decision was made to develop a deck of playing cards designed according to an already defined BMI framework: the 5V framework by Taran *et al.* (2016). This will be elaborated on in greater detail later in the article.

The booster cards are built on the principle of creating analogical reasoning. Analogical reasoning is understood as applying insight from one setting to another, which is a method found to be useful for creating novel business model ideas (Gavetti and Rivkin, 2005; Martins *et al.*, 2015; Rumble and Minto, 2017).

⁷ A catch-22 is a paradoxical situation from which an individual cannot escape because of contradictory rules (e.g. a bank will never issue someone a loan if they need the money).

A known example of applying analogies is Nespresso. Traditional coffee machine manufacturers focus on selling machines with high margins, which is essentially the core of their business model. In contrast, Nespresso coffee machines are sold with a low margin, but the company compensates by earning high margins on the coffee pods. At the core of the business model, Nespresso is creating a lock-in effect towards the consumer, as the machines only can be used with Nespresso pods. Nespresso developed and succeeded with this BMI by adopting elements (or analogies) from the razor-and-blade model known from Gillette (Matzler *et al.*, 2013), and many have since tried to copy them in the industry.

The story of Nespresso shows the strength of using analogies by removing the constraints of dominant logic (coffee machines are the core) within the same industry or sets of assumptions. Furthermore, a set of different business model patterns or recipes (Baden-Fuller and Morgan, 2010; Osterwalder and Pigneur, 2010; Taran *et al.*, 2016) can help overcome the limited capabilities of students, for example (Rumble and Minto, 2017).

The booster cards help break the barriers of dominant logic and the limited capabilities by enabling students to experiment with various ideas through different analogies of the cards. These analogies support students to overcome their dominant logic from a given context and further provide a range of diverse alternatives, reducing the barrier of limited capabilities.

The cards are based on 71 different business model configurations identified in the work by Taran *et al.* (2016). Each card in the deck represents a specific configuration and contains a short description of the configuration and real-life example to strengthen the analogy further. The description might give room to gain context-free ideas, but if the students are having issues with generating ideas or understanding the concept, the real-life examples often spur them in the right direction. An example can be found in Figure 1, where the configuration 'Free for advertising' provides both a short explanatory text of the general concept and empirical references (in this case of Facebook and Google).



Figure 7-1. Examples of Booster Cards

Thus far, the cards have been tested in different contexts ranging from more than 125 business administration students at the bachelor's level in a workshop-teaching format to more than 30 international business master's students in a traditional classroom setting for three years. The cards have also been tested with professionals and business developers. Through various trials, the booster cards have proven to act well as a facilitator of discussing different business opportunities and future scenarios by providing new ideas on how to design or reconfigure business models. We will elaborate on these outcomes later in the paper.

7.2. APPROACH

7.2.1. INITIAL UNDERSTANDING AND REQUIREMENTS

The booster cards can be implemented in various settings, such as a workshop with practitioners and lectures with students. The latter will be exemplified in the paper. It is essential to add that the cards function primarily as a facilitator or add-on to use in the teaching context. The participants will need a basic understanding of business models, and it is also preferable to have experience in working with a business model framework, such as Osterwalder and Pigneur's (2010) business model canvas (BMC). The notion of a framework (e.g. BMC) helps to illustrate how the cards affect a given

business model, which is an essential element in business model reconfiguration. However, as mentioned earlier, this paper will focus on the earlier stages of BMI.

Following the original work of Taran *et al.* (2016), the 71 cards are divided into five different categories. These five categories address key areas found throughout both empirical and theoretical business model research in the following ways:

- Value proposition (VP): What is the company offering (pink cards)?
- Value segment (VS): To whom is the company offering it (green cards)?
- Value capture (VC): How much and in what way does the company generate revenue (brown cards)?
- Value network (VN): With whom does the company collaborate to develop, distribute, and/or sell the offering (blue cards)?
- Value configuration (VCo): How does the company develop and distribute this offering cost-effectively (yellow cards)?

The number of configurations (i.e. cards) is not evenly distributed across the above-mentioned categories. As such, there are 23 VP, 8 VS, 14 VC, 10 VN, and 16 VCo cards.

The Taran *et al.* (2016) framework was chosen because it offers an increased number of categories and configurations compared to other frameworks. Previous to this study, the only academic work on BMI cards was found in Gassmann *et al.* (2014). In comparison, the Taran *et al.* (2016) framework 1) employs five categories instead of four (resulting in a clear separation between the business model elements of customers and distribution), 2) entails the most exhausting list of configurations (71 compared to the original 55), and 3) offers the most recent review. We have also found other BMI cards, all of which comprise 50 to 68 cards (e.g. boardofinnovation.com, businessmakeover.eu, and methodkit.com). Nevertheless, none of these are scientifically derived but rather are based on practical work, experience, and consultancy tasks. In short, the 71 configurations offered by Taran *et al.* (2016) comprise the most extensive, scientifically developed, and updated list we were able to find. For further information about the configurations, we refer to Taran *et al.* (2016).

In the teaching setting, the initial approach would include one or several lectures introducing business models in general and potentially the BMC. Using the terminology of the BMC helps to frame the experiments that the booster cards facilitate. Figure 7-2 exemplifies how the configuration of ‘leasing’ not only affects its main category (VC) but also how designing or reconfiguring a business model to

the leasing configuration would affect other parts of the business model. The effects are not explained in the cards, as they are different from case to case; hence, the participants will need to reflect upon these in each situation.

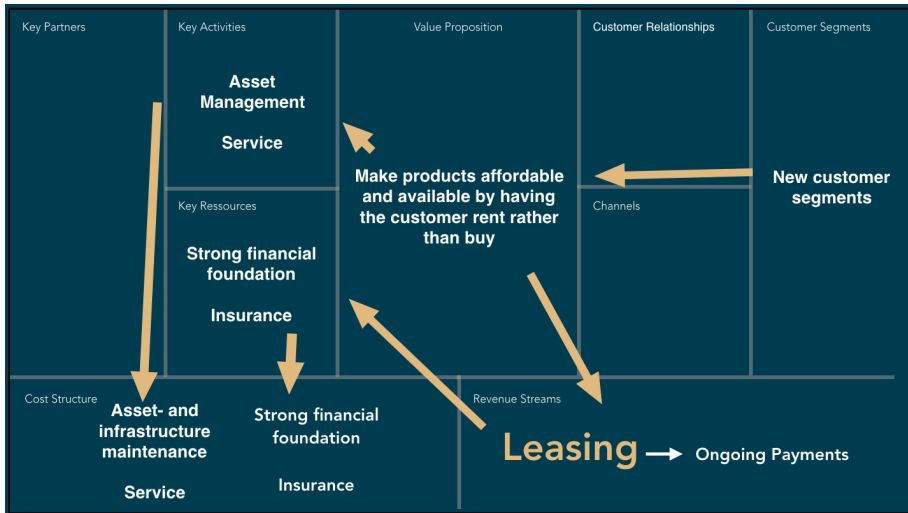


Figure 7-2. The configuration of leasing

Having established the basic knowledge regarding business models, it becomes essential to frame the notion of BMI and how experimenting with the cards is meant to improve the students' ideas. In entrepreneurial courses, the cards are more relevant in the lines of business model ideation, where they can be explored as inspiration to generate novel business model design ideas for new business opportunities, problems, or projects. In settings where students work with real-life cases (e.g. established companies with existing business models), the cards provide new inspiration to stimulate business model reconfiguration. In both instances, the cards enhance the experimentation with ideas that might not have been produced without this stimulation, thereby overcoming the cognition biases of the dominant logic and limited competences of the students.

Following Byrge and Hansen (2014), we found that the approach of first working individually, then in pairs, and lastly all together in the group (presented in Steps 5-9) will enhance the ideation process by bringing more knowledge into play. If time is short, Steps 3 and 6 could be skipped.

Table 7-1. Manual for using the Booster Cards in a teaching setting

Booster Cards Manual	
Steps /Duration	Action
1 <i>15 min</i>	Form groups consisting of approximate 4 students. <i>Aim: Form dynamic working groups</i>
2 10-15 min	The students are then asked to browse through all 71 configurations cards to get a brief understanding. Set aside 10 min for browsing and a few minutes for questions that need to be discussed in the plenum. <i>Aim: Basic introduction and understanding to the configurations</i>
3 <i>Depends</i>	This step is optional. The teacher or students could here identify areas, where they want to focus and hence select the group of cards associated to this focus. For example, if the students want to work primarily with the revenue streams or value capture, the students can choose to primarily use the brown (value capture) cards. <i>Aim: Narrow the idea generation process.</i>
4 <i>5 min</i>	Each group member hereafter draws five booster cards from the deck to start the ideation process. <i>Aim: Stimulate/provoke through random and unrelated inputs</i>
5 <i>15 min</i>	Individually, the students should now try to generate business model ideas based on the cards he/she has for 10-15 minutes, without talking to each other. <i>Aim: Idea generation, problem solving, prototyping</i>
6 <i>30 min</i>	In pairs of two, the students should now exchange their ideas to be co-developed even further (5 minutes per participant for all ideas). This round continues until all possible pairs in a group have been created and co-developed together <i>Aim: Stimulate/provoke through random and unrelated inputs</i>

<p>7 <i>10-15 min</i></p>	<p>Each student should individually assess which idea is the best, based on an assessment criteria made by the teacher. It could be the most novel idea, the most viable etc. (1-2 minutes).</p> <p><i>Aim: Idea assessment</i></p>
<p>8 <i>25 min</i></p>	<p>The students will individually prepare a short presentation of their best ideas (one to three) either as a short narrative or using the BMC as a storyboard going through each building block one by one.</p> <p><i>Aim: Idea refinement and communication</i></p>
<p>9 <i>25-30 min</i></p>	<p>Each student presents to the rest of the group. A short amount of time (approx. 5-10 minutes) should be devoted for feedback and discussion of each idea.</p> <p><i>Aim: Idea communication, idea refinement, and prototyping</i></p>
<p>10 <i>15 min</i></p>	<p>Each group should determine which one or two ideas they think are the best, based on the criteria previously presented.</p> <p><i>Aim: Idea assessment and selection</i></p>
<p>11 <i>15-20 min</i></p>	<p>Give each group 15-20 minutes to discuss the idea even further and prepare a group presentation of the configuration(s) they have recognised as the best.</p> <p><i>Aim: Idea refinement and communication</i></p>
<p>12 <i>Depends</i></p>	<p>Each group performs a 5-minute presentation of their configuration in front of either an opponent group, company representatives or the whole class. Set aside 5-10 minutes for feedback on the idea from either the opponent group or plenum.</p> <p><i>Aim: Idea pitching and -refinement</i></p>
<p>13 <i>Depends</i></p>	<p>As a final step, have a discussion in plenum about the learnings and what further steps to consider when going from business model ideas to business model implementation.</p> <p><i>Aim: Frame the key learnings distinguish</i></p>

7.2.2. USING A REAL-LIFE CASE

The approach described above has also been tested several times with real-life cases where a business representative (e.g. owner, manager, or an employee) presents their company in front of the class, potentially stating an innovation dilemma. As stated in the introduction, the company is often restrained by the dominant logic or/and capabilities; hence, they are prepared to seek inspiration from other sources, such as students. To ensure the students are not predominantly influenced by the logic and constraints of the company representatives, the use of analogies through the booster cards aids the students to have an open mind and generate novel ideas continuously.

In this setting, it is essential to have the students map the company's current business model using the BMC (or other business model frameworks) as an initial phase before the steps mentioned above; otherwise, the students will have a hard time understanding the underlying basis of the company case. The students can also use the booster cards to identify the current patterns or configurations of the company to understand and interpret the current setting⁸. Subsequently, the students are asked to either generate new ideas or innovate in the current setting. The process could evolve around various objectives, such as targeting specific customer problems, innovation issues, or technological challenges, or it could merely be an open task.

As stated earlier, the students often rely heavily on the logic or context presented by the company if the process is not facilitated. If a real-life case gives away too much information about the vision for the future, the students end up developing ideas that are not new to the company or novel or interesting in any way. We experienced this when a company accidentally told the students that their next market would be wholesalers. Afterwards, around 80% of all the ideas developed by the students addressed wholesalers as the 'new innovative strategy' for the company. The example shows how quickly students absorb dominant logic and experience difficulties, diverting from it.

From our experience, fostering novel ideas and new insight occurs more frequently when the cards are incorporated as a medium in the ideation process right after the mapping of the existing business model. The booster cards provoke new thought patterns and thereby amplify the pool of ideas the students are creating. The analogies and stimulation through the cards help the students develop relevant ideas that are directly transferable from the cards. Other times, the students have 'wild' ideas that are not related to the cards, but the line of thought was initiated using the cards.

⁸ Interpreting is also an often-found phase in analogy models (e.g. see Rumble and Minto, 2017, for more details).

Although these initial ‘wild’ ideas are unrealistic, we have seen many examples where they eventually spur new ideas that are viable.

An example of the above was observed during a real-life case workshop where the company in question had too high costs. From the card representing the configuration ‘external sales force’, one group had the idea of only having salespeople from low-income countries. This idea was pretty ‘wild’ and unrealistic, but together with the booster card representing the configuration ‘target the poor’, they started wondering why the company did not address low-income countries. As the company made modular products, the relatively high production cost could be lowered by the economy of scale, making the market of developing countries attractive as a new source of income. In essence, the original idea would have little chance of success, but the evolution or development from the initial ‘crazy’ idea proved to be an important novel idea that the company wanted to investigate further and eventually implement as part of their future strategy.

In all the workshops and lectures that we have facilitated in this manner, the company representative has always left with new inspiration and often reasonably implementable business model ideas and innovation routes.

7.2.3. KEY INSIGHTS

Through the use of analogies, the booster cards seemingly provide a practical and understandable method of breaking down some of the barriers in the often-impeded BMI process. Repeatedly, students or companies become stuck within their inherent limitations and dominant logic, which rarely spurs original ideas. With a relatively minimal amount of preliminary knowledge, students, companies, entrepreneurs, and business developers can gain new inspiration on how to either design or reconfigure business models.

Furthermore, the booster card analogies and their configurations are built on both generic text explanations and case examples, which often makes the process very intuitive for students at all levels. The cards provide a hands-on and tangible approach rather than the more ‘fluffy’ theoretical approaches. The use of the booster cards is especially relevant in courses that undertake a practical approach to understand, innovate, and test business models. Moreover, the booster cards and pertaining processes have continuously led to new innovative ideas and inspiration on how to innovate business models, which was the overall ambition of introducing the booster cards.

Reflecting on the learning outcomes of using the booster cards, we have likewise seen positive results. We have not performed statistical experiments but have some experience that shows how students adopt and apply the analogical use of the booster cards after a workshop or lecture. Through written exam essays on the topic of BMI,

we have found that students apply the knowledge from the booster cards and analogical learning to explain different business model concepts and existing business models of case companies. Consequently, this shows that students gain a deeper understanding of the topic and learning objectives of the course. Additionally, students that are using the booster cards often manage to develop a greater variety of business model ideas. While not statistically proven, the development of more business model ideas was agreed upon by both the internal lecturers and external examiners of the assignments. The same type of evidence can be found in the vast number of oral exams we have done over the years. Students who have been introduced to the booster cards (and actively used these in their project work, written assignments, etc.) demonstrate better insight into the subject and can have more complex discussions during the exam compared to students without this knowledge. Moreover, the workshops have successfully generated novel, inspiring, and applicable new business model ideas; hence, the case companies, without request, have all expressed their interest in participating again.

7.3. DISCUSSION AND CONCLUSION

The idea of using inspiration from generic business models is not new in a business model setting. The booster cards are similar to gaining inspiration from business model patterns (Osterwalder and Pigneur, 2010; Gassmann *et al.*, 2014), analogies (Rumble and Minto, 2017), analogical reasoning and conceptual combinations (Martins *et al.*, 2015), business model recipes (Baden-Fuller and Morgan, 2010; Sabatier *et al.*, 2010), and so on. Nonetheless, the booster cards offer the students a more hands-on experience, which often supports the experimentation or ideation phase of BMI, compared to directing them to a book or web- page. The analogies of the cards help to break down the main barriers to BMI, that is, the dominant logic around how firms create and capture value (Bettis and Prahalad, 1995; Chesbrough, 2003) and the missing ability to generate new ideas (Pisano, 2006).

The fact that the booster cards are not a standalone solution might potentially also constitute their main limitation. Students need a certain understanding of the business model concept, and it is also preferable to have experience in working with a business model framework to use the cards most efficiently. However, if this basic knowledge is achieved, the booster cards are reasonably intuitive. Furthermore, an advanced class could also address related matters, such as the effect a new configuration might have on the supply chain, management accounting, performance measurement, and other topics on how to operationalise the suggested changes to a specific business model. However, due to limitations of the short paper format, these are not addressed here.

Another limitation worth mentioning is the time factor. In general, we recommend at minimum a three- hour workshop for using the booster cards, including a short introduction to business model configurations, the booster cards, and then the hands-on approach. Dedicating enough time is vital for the students to understand the booster

cards and reflect upon their ideas and designs. If rushed, the result will typically be half-finished unoriginal ideas, which they will be more reluctant to present. Ultimately, this will naturally negatively affect the learning output.

The most impressive part of using the booster cards as an analogy stimulus is the variety of business model ideas generated by the students. Even when applying the same business case in different workshops with diverse students, we have observed radically diverse business model ideas each time. In addition, the students appear to enjoy 'playing' with the booster cards even after the workshop session is over. For the students, it is not only a fun exercise, but they also gain more comprehensive knowledge and competencies in understanding and working with business models. Ultimately, these skills will help the students fulfil learning objectives related to an innovation course. Hence, the adoption of the booster cards enables the students to not only reach the learning objectives of the course but also build valuable BMI skills for future employment.

CHAPTER 8. CONCLUSIONS

On a final remark, I would like to present some reflections on contributions and areas for further research. As each paper of this dissertation has been written as an individual paper or chapter for publication, and present their respective conclusions and contributions, I do not repeat this. Instead, I provide a conclusive frame to the dissertation as a whole and refer back to the overall research objective.

8.1. CONTRIBUTIONS TO SCIENCE

As mentioned in the introduction, the research proposal of this dissertation originally stemmed from practical issues encountered while collaborating with companies on business models. In response to this, I wanted to explore new ways of presenting business models to improve aspects of assessment, design, forecasting and operationalization. Through a literature review, the need for more comparable data of business models was also highlighted. Reflecting upon this, I gravitated towards Activity Systems Theory and Representation Theory, which lead me to formulate the following research question:

How can comparable data on business models be created and what are the implications?

This research question led to the objective to develop a modular software system (Business Model QUANT) comprising a database of derived business model configurations and their related value drivers. Interlinked with the database, a business model framework in the basic form of a questionnaire was developed to enable more consistent data collection on business models. This approach, along with its application potential, is currently the result to a series of reflections and experiments, which are elaborated in the six papers of this dissertation.

One overarching conclusion remains: did this research in fact manage to discover a way to develop more comparable data on business models?

With confidence, and as I have demonstrated, the answer is yes. By exploring alternative ways and techniques of framing and conducting business model research, it is safe to say that comparable data has been generated. This leads me to believe that saturated quantitative data on business models is within reach and can contribute to best-practice theory. Moreover, I also envisage that the concept might experience novel transformations in the near future. By no means do I imply that the approach presented in this dissertation represents the definitive pathway to such rejuvenation, but considering recent publications by e.g. Cosenz (2017) Remane *et al.* (2017), indications point towards the rise of a more performative research agenda on business models driven by software.

I believe this research outlines some important learnings that may enable others to undertake the task of building more comparable data on business models. First and foremost, comparable data on business models are not created overnight. Regardless of the approach, quantitative data on business models will require a multi-iterative process, which is probably best explained through Fielt (2011). In line with principles of hermeneutics, Fielt (2011) outlines the iterative process of building knowledge on business models as a continuous loop between definitions, frameworks and archetypes.

As business model researchers we must use our current knowledge in the best possible way to devise frameworks, or instruments of measurement, in order to gather information about the phenomenon and consequently revise our understandings. Thus it must be accepted that instruments of measurement, to some degree, will be imprecise – especially early iterations. The key is to build a structure that compensates for these short-comings through rapid learning and easy reconfigurations. In other words: enabling a highly iterative process.

Fielt (2011) argues for missing links from *Frameworks* → *Archetypes* → *(re)Define* and further underlines how the current frameworks does not support sufficiently rigid data collection and interpretation to effectively build generic knowledge.

This research attempts to reduce this gap by presenting a new type of business model framework in the form of the BMQ system, where data can be uniformly collected, analysed and fed back into an alterable structure. Such features can only be obtained to a satisfactory extent through software.

The structure of the BMQ is not perfect, but has proven capable of continuously evolving in line with additional data collection, which will expectantly lead to more precise understandings of business models and consequently stronger theoretical underpinnings in the near future. Again, I do not believe this approach represents the only solution to building comparable data on business models. In fact, there might be several.

As previously mentioned in chapter 2. (Nielsen *et al.*, 2017b), the long-term ambition of this research will be an advancement of the software to a level where it can generate contributions to business model theory. In best case, a scalable software structure will enable accumulation of larger amounts of relevant business model data. Thus, it will be possible to capture the essentials of a business model including how it operates and performs over time in regards to e.g. industry or competition – in essence: comparable data on business models. In line with Fielt (2014), Groth and Nielsen (2015), Lambert (2015) and Nielsen *et al.* (2017b) this will hopefully bring us closer to a true business model taxonomy in the near future. When initiating this research, I immediately found it difficult to estimate the extent to which this was achievable. At this point, I am no less positive that this is achievable, but I am also aware that there are quite a few

pieces still to be laid out. Perhaps further progress requires different and/or complementary approaches, hence I hope this research will inspire and encourage other researchers to follow this path.

The concept of business models has not yet established a theoretical grounding in economics or in business and Teece (2010) argues that economic theory generally neglects business models because they solve real world problems. I share this perception and see that the gateway to overcome these challenges is found through a study of real-life business models – business model configurations.

8.2. CONTRIBUTIONS TO PRACTICE

Business model assessment

“Despite the common understanding that the business model is of vital importance for securing competitive positioning in the market place, managers still seem to lack appropriate frameworks and tools, which can support them in renewing and rejuvenating the existing business models of their companies” (Taran et al., 2016) .

Taking stock of the as-is circumstances is an important step in any endeavour to conduct business development, hence, business model innovation is no exception. The capability to map and assess the as-is business model should be considered mandatory for further advancements. As previously mentioned, the Business Model Canvas by Osterwalder and Pigneur (2010) represents an intuitive tool for this purpose, but with the noticeable shortcoming of relying heavily on the users’ skills and familiarity with business models. In any case, the latter is not a prerequisite for conducting a sufficient business model mapping

By providing a check list in the form of a questionnaire, this research offers a more rigid and accessible way for practitioners to map a business model. This might not only be relevant for business professionals, but also for consultants to save time or/and ensure consistency and alignment.

Business model prototyping

This research developed a structural and comprehensive “shopping list” of 71 available business model configurations which can aid and inspire companies in the process of innovating their business model (Taran *et al.*, 2016). This has been achieved by segmenting all 71 configurations into 5 categories depicting potential innovation routes for companies, respectively: 1) value proposition; 2) value segment; 3) value configuration; value network; and, 5) value capture. From a strategic point of view, the purpose of this ontological classification reach beyond the traditional business model frameworks such as the business model canvas by Osterwalder and Pigneur (2010). By experience, these frameworks tend to restrain users within their

own frame of reference, hence why the classification scheme effectively becomes a tool which can provide new inspiration and help break conventional thinking. Ultimately, the result should be more radical, disruptive and new-to-the world ideas (Taran *et al.*, 2016).

Chapter 7 of this dissertation elaborates on the practical application of this framework using a teaching setting as a backdrop to define an analogy-based approach through stimulus cards to elevate the creative process in designing and prototyping new business models. The future steps from this point includes

Business model forecasting

Implementing a new business model or changing an existing one can have significant implications. Therefore, the ability to forecast is an important factor to eliminate undesired consequences in the future. By adding more depth to the framework, the concepts of configurations and value drivers compose what could be referred to as a business model innovation support system for corporate managers. Based on the work so far, the database contains fairly extensive descriptions, which can assist in this regards. It should be noted, however, that the current information in the database is still based on a relatively limited amount of sources; the quality and depth of this information is expected to gradually increase.

Business model operationalization

This research also has consequences for operationalizing the business model. Here, the configurations and value drivers also play a potential valuable role to uncover the required actions or precautions to consider when implementing business model changes. Although the BMQ system is already capable of providing some assistance in this regard, the functionality is still considered early stage. The following section addresses this by outlining a future research agenda on benchmarking and performance measurements.

8.3. EVALUATION AND FURTHER RESEARCH

All research has limitations and I reflect on the shortcomings of this dissertation. In this, it is worth noting that this dissertation is perceived as an opportunity to take stock and evaluate the status of this research endeavour. As elaborated above, several contributions have been made so far. However there are areas that constitute limitations and, thus, opportunities for further investigation.

An outlook towards theories of benchmarking

One of the aspects outlined in this dissertation concerns in the prevailing weakness of creating meaningful benchmarking around corporate performance. At this point in time, corporate benchmarking is not associated with any solid theory, while consequently depending on the individual user, be it an analyst, a manager or a controller (Nielsen *et al.*, 2017b). Subsequently to this lack of theory, benchmarking is also sometimes expressed as evaluations, assessments or comparative data (Behn, 2012). In the public sector, (Behn, 2003) has problematized performance benchmarking while benchmarking in the private sector is often related to the Beyond Budgeting movement (Hope and Fraser, 2003) and a cluster of literature around budgeting and incentives management. However, the relation to performance is not consistent as it changes correspondingly to the specific benchmarking strategy (Tillema, 2010).

An outcome from this research suggest the eventual existence of a broad variety successful business models within the same industry and thus how these vary between competitors. This observation raises questions in regards to the traditional notions on performance measurement found in the benchmarking literature. Perceived as a valuable source of information (Kouzmin *et al.*, 1999), performance measurements serve as useful tool for managerial navigation and decision-making when benchmarked with relevant peers. During such exercise it would arguably be relevant to compare business model configuration including patterns value creation patterns. In consideration of the latter, there seems to be meaningful research in the intersection between business models and benchmarking.

An outlook towards performance measurement

As indicated above, there is a natural link between benchmarking and performance measurement. This is not least because benchmarking is concerned with optimizing processes and outcomes in organisations. Contemplating the recent years of managerial interest in business models, it seems rather unreasoned why synergies have not yet developed in regards to performance measurement. As argued by Nielsen *et al.*, (2017b), limited progression in management accounting concepts since the Balanced Scorecard (Kaplan and Norton, 1992) seem to be the case despite technological advancements and consequently new prerequisites for doing business.

Chapter 3 offer a timely critique of the Balanced Scorecard era of multi-dimensional performance measurement concepts developed over the last 25 years (Nielsen *et al.*, 2017b). Through the structure of the BMQ system and the appertaining value driver patterns, new parameters linked directly to core of the business are outlined. Despite early development stage the system indicates a promising way forward for KPIs on business models. A first and natural step in this direction, would entail the development value driver platform with related clusters of KPIs connected to each

business model configuration as depicted by (Nielsen *et al.*, 2017b). However, comprehensive data of mapped corporations is critical as called for by Groth and Nielsen (2015) and Lambert (2015), to open avenues of more advanced statistical approaches.

Further, the empirical data may even warrant a redefinition of the Business Model Canvas framework as well as becoming an internationally renowned example of how to use software for KPI benchmarking purposes.

Final remarks

While this dissertation attempts to unfold the concept of business model configurations, it consequently opens up further avenues of research. Hereby, I hope that the presented findings and inferences will bring inspiration to other researchers in their endeavour to advance the business model concept in the future.

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SUMMARY

This research aims to strengthen the theoretical basis within the field of business models, by proposing a way to develop comparable data on the concept. The main contribution comprises a software-based structure referred to as Business Model QUANT (BMQ), which enables more precise and consistent data collection and data management of business models. The software comprises two main modules: a relational database representing the analytical construct and a questionnaire module for data collection that links directly to the database. Although more research is needed in the future, this dissertation represents an important milestone as it accounts for the origin and the development of BMQ research instrument. Moreover, it investigates the application potential to existing fields of research, including business models, business model innovation, management accounting and intellectual capital, and looks towards practical contributions.