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BUSINESS MODEL INNOVATION:
FROM UNDERSTANDING THE PROCESS TO TRACKING THE CHANGE

PhD dissertation

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To pragmatic practitioners

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EXECUTIVE SUMMARY

This doctoral dissertation builds a conceptual understanding of the process of business model innovation in established firms and proceeds to address the question of how changes in the business model can be tracked. In the pragmatist scientific tradition, each of the four papers included is warranted by a practical problem and aims to offer useful guidance to managers.

The first paper reviews the classic and more recent literature and conceptualizes a process of business model innovation. The problem it aims to tackle is how to innovate the firm's business model in response to changes in the business environment and what to be aware of in the process. The business model innovation process is argued to consist of two iterative cycles: search and change. The paper further identifies the forces that can influence the successful outcome of each of the cycles. For business model search, these drivers include the ability to understand the environment, the presence of entrepreneurial people, the commitment of senior management, and the dedication of resources and funding. For business model change, some of the critical factors are the commitment of the firm's senior management, the involvement of the firm's middle management and employees, the change implementation process, and the introduction of new technology.

The second paper develops a technique to capture business model changes from public sources and to facilitate further analysis of these data. The paper addresses the researcher's practical problem of how to collect secondary data on changes in a firm's business model and proposes certain approaches to enable the analytical process. This paper responds to the scarcity of methodological guidance for qualitative data analysis in the business models literature and in case studies in general. The paper further provides a review of contemporary approaches to studying business model change and argues for the sufficiency of secondary data to study patterns of business model change in public firms. The technique can also be of use in

generating valuable insights for practical strategy planning by offering a way to track strategic moves and longer-term development trajectories of competition, industry peers and acquisition targets.

The third paper identifies three strategic directions of business model change that management can consider when planning for growth. The case study of a rapidly growing new technology-based firm in a mature industry demonstrates that a firm can follow one of the three trajectories: (i) enhancing the core business model, (ii) "unlocking the nucleus" inside the core business model, or (iii) expanding beyond the core business model. The first trajectory assumes adding complementary activities to provide complete customer experience. The second trajectory means commercializing the already conducted activities as separate products for new markets. The third trajectory stands for adding unrelated activities resulting in new products for new markets thus turning the firm into a multi-industry conglomerate. The second trajectory is quite a potent option which opens opportunities for new revenues while not departing very far from the current business activities.

The fourth paper takes a deep-dive into the corporate annual strategic management cycle. By adopting a design science approach during a year-long field study in a multi-subsidiary firm in the dynamic ICT industry, it develops a new process of revising KPIs (key performance indicators), including the indicators related to business model change. The paper also proposes a general guide for such process design. The decision-making process about which metrics to track, affects what management focuses on during the year. The rather streamlined process outlined in the paper is capable of facilitating swift responses to environmental changes in local markets by establishing new KPIs on an ongoing basis together with the business units on the ground, and thus is of key importance to strategic management of the firm.

DANSK RESUMÉ

Denne ph.d.-afhandling etablerer konceptuel forståelse af processen omkring etablerede virksomheders fornyelse af deres forretningsmodel, herunder følge ændringer heraf over tid. I henhold til den pragmatisk-videnskabelige tradition omfatter hver artikel et praktisk problem, der sigter efter at tilbyde ledere praktiske anbefalinger.

Den første artikel gennemgår den klassiske samt nyere litteratur og beskriver forretningsmodellens fornyelsesproces. Artiklens hovedfokus er rettet imod, hvordan ledelsen kan forny virksomhedens forretningsmodel som respons på ændringer i virksomhedens omgivelser, herunder hvad ledelsen bør have særligt fokus på. Fornyelse af forretningsmodeller foregår som iterative cycli bestående af: (i) en søgningsproces og (ii) en ændringsproces. Endvidere afdækkes, hvad der kan føre til et vellykket udfald af hver proces. Søgeprocessen fremmes af evnen til at forstå det omgivende samfund, tilstedeværelsen af individer med iværksætterånd til rådighed, opbakning fra den øverste ledelse samt tilstedeværelsen af de nødvendige ressourcer og finansiering. Hvad angår ændringsprocessen, så er de kritiske faktorer: commitment af virksomhedens øverste ledelse, inddragelse af virksomhedens mellemledere og medarbejdere, implementering af forandringsprocessen, samt introduktion af ny teknologi.

Den anden artikel udvikler en metode til at identificere ændringer i forretningsmodellen over tid der muliggør efterfølgende analyse heraf. Artiklen adresserer med andre ord forskerens velkendte problem med at indsamle sekundære data, herunder data, der retter sig mod forandringer i en virksomheds forretningsmodel. Der gives eksempel på, hvordan denne udfordring kan håndteres ifm. analyseprocessen. Artiklen imødekommer således de sparsomme metodeanvisninger specifikt i forbindelse med kvalitative dataanalyseprocesser i forretningsmodellitteraturen og mere generelt i casestudier i almindelighed. Endvidere gennemgås de metoder, der bruges til at undersøge

forandringer i forretningsmodeller, og der argumenteres for, at sekundære data udgør en tilstrækkelig base for at studere forandringsmønstrene i børsnoterede selskaber. Den udviklede teknik kan også anvendes til at genere værdifuldt input fra fx monitering af relevante konkurrenceforhold og mulige opkøbsemner der anses for at kunne være værdifuld viden i strategiarbejdet.

Den tredje artikel afdækker tre strategiske retninger ift. forretningsmodelforandringer, som ledelsen kan overveje i forbindelse med ændring af deres forretningsmodel, når virksomheden planlægger vækst. Casestudiet af et hurtigt voksende nyt teknologibaseret firma inden for en moden industri viser, at en virksomhed kan følge en af tre strategiske veje: (i) forbedring af kerneforretningsmodellen, (ii) "frigørelse af forretningsmodellens centrale komponenter", eller (iii) udvidelse ud over kerneforretningsmodellen. I det første spor tilføjes aktiviteter for at kunne levere en komplet kundeoplevelse. Det andet spor indebærer kommercialisering af allerede gennemførte aktiviteter i form af særlige produkter til nye markeder. Det tredje består i at tilføre noget, der kan skabe nye produkter til nye markeder, således at virksomheden bliver en multiindustrikoncern. Spor (ii) er ganske effektivt, især når det kombineres med (i), det kan give adgang til nye indtægter, uden at der afviges fra de nuværende forretningsaktiviteter.

Den fjerde artikel undersøger den årlige strategicyklus. Et feltstudie, hvor en design videnskabelig-tilgang er benyttet, gennemføres over et år i en dynamisk ICT virksomhed med mange datterselskaber. Artiklen udvikler en ny metode, der indebærer en revision af KPIere (key performance indicators), herunder specifikke KPIere, der er relateret til forandringer af forretningsmodellen. Artiklen giver også en generel vejledning til et sådan procesforløb. Beslutningen om, hvad der skal måles på, påvirker hvad ledelsen vil fokusere på i løbet af året. Det strømlinede forløb, der præsenteres i artiklen, muliggør hurtig reaktion på ændringer på lokale markeder ved løbende at opsætte nye KPIere sammen med lokale forretningsenheder. At evne at håndtere dette forløb effektivt vurderes at være af største vigtighed for den strategiske ledelse af virksomheden.

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1. INTRODUCTION

1.1. THEORETICAL POSITIONING

The business model is a rather new concept that has attracted growing attention from both academic researchers and practitioners since its first prominent appearance in the early 2000s (see e.g. Amit and Zott, 2001; Chesbrough and Rosenbloom, 2002; Linder and Cantrell, 2000; Osterwalder, 2004), after the opening of new ways to organize business activities following the mass adoption of internet technology. As a new object of inquiry of high interest to the disciplines of strategic management, innovation management and entrepreneurship, to name a few, hundreds of academic contributions have been made over the last 15 years.

The first problem that the field encountered was the very definition of the business model. What is this "business model"? More than a decade later, there is still no clear answer, but a few definitions seem to have captured the attention of researchers more than others. For example, one prominent view proposes to focus on nine elements such as value proposition, customer segments, channels, customer relationships, partners, activities, resources, cost structure, and revenue streams, and organize them into a "business model canvas" framework (Osterwalder, 2004). Another view argues that the business model is a system that solves the problem of managerial choice about customer identification, customer engagement, value chain linkages, and monetization (Baden-Fuller and Haefliger, 2013). The business model has further been referred to as "the heuristic logic that connects technical potential with the realization of economic value" (Chesbrough and Rosenbloom, 2002), "the story that explains how enterprise works" (Magretta, 2002), and "a reflection of the firm's realized strategy" (Casadesus-Masanell and Ricart, 2010).

One of the most noticeable views on the business model though is a process-based view. In this view, the business model is seen as an activity system (Zott and Amit, 2010) or a set of core repeated processes (Cavalcante,

2011) that the firm conducts together with its partners to create and capture value. This definition looks at the essence of the firm's business through the lens of the activities that the firm conducts over and over again, like a clock mechanism. Further, it includes other actors such as suppliers and channels in the activity system. The objective of this system is to produce output in the form of products for specific markets, thus generating revenues and profit for the focal firm. This is the view on the business model that this dissertation adopts.

Even the finest clock mechanisms tend to wear out with time for one reason or another. Maybe some of the parts become old and require replacement, or maybe the whole mechanism becomes obsolete and loses its relevance. Similarly, the business model of the firm may occasionally require a major overhaul due to internal or external pressure. In fact, several global CEO studies confirm that corporations are actively seeking guidance on how to innovate their business models (IBM, 2006, 2008). It is thus not surprising that more recent scholarly studies in the field of business models focused on the actual process of transition from one business model to another.

Business model innovation has since been established to influence firm performance (Zott and Amit, 2007). Innovative changes in the business model have been associated with faster margin growth (Pohle and Chapman, 2006) and the ability to increase shareholder value (Amit and Zott, 2012). Fundamental activity reconfiguration efforts through business model innovation have been known to enhance the firm's strategic flexibility and consequently improve performance (Bock *et al.*, 2012). Further, some types of business models have been empirically confirmed to have better financial performance than others (Malone *et al.*, 2006).

An important question in the business model innovation research stream is what the process of changing the business model might look like. This literature is rather new (Zott and Amit, 2015). So far we have seen a handful of contributions, but no more than that; hence this dissertation.

This dissertation aims to contribute to the field of business model innovation; and more specifically, to the research stream that adopts the process/activity-based view and is interested in the process of transition from one business model to another in the context of established firms. This process is a part of the overall strategic management of the firm, and is useful to understand when management considers altering its business model as a response to current or foreseen changes in the business environment.

The title "Business Model Innovation: From Understanding the Process to Tracking the Change" emphasizes the positioning of the dissertation in the business model innovation literature, highlights the two major sub-topics permeating the dissertation, namely the process of business model innovation and tracking changes as this process is unfolding, and mirrors the progression of thinking and writing from general to specific. The main research question pursued in the dissertation is squarely about how business model change can be tracked, which has not been directly addressed by the literature.

The four papers included in the dissertation respond to the more specific research questions, as follows:

- **Paper 1: Business Model Innovation as a Process.** How can the process of business model innovation be conceptualized? What are the major factors inhibiting and facilitating the process?
- **Paper 2: Tracking Business Model Change**. How can changes in the business model be tracked via public data sources?
- **Paper 3: Trajectories of Business Model Change**. Which trajectories of business model change can management consider taking?
- **Paper 4: Designing a Process for Tracking Business Model Change**. How can management track the progress of their own firm's evolution towards a new business model?

Each of these research questions is pragmatic in its nature (that is "how can", rather than "how does/is") , where "pragmatic" most notably refers to the search of solutions to genuine human problems in the real world[1]. Thus the answers and the main contribution of the dissertation lie in the development of normative guidance for managers.

This is accomplished by reviewing extant literature (see Paper 1 and Paper 2), developing specific techniques and approaches (see Paper 2 and Paper 4), discussing and showing the applicability of these methods (see Paper 3 and Paper 4), and last but certainly not least providing empirical accounts that can serve as valuable input for strategic management of the firm (see Paper 3 and Paper 4).

1.2. MOTIVATION

Writing this doctoral dissertation took me four years of full-time work. However, the process started earlier with developing an initial interest in the topic of my inquiry.

The seed of my doctoral dissertation can be traced back to late 2010. After a decade in the industry, I enrolled in a master's program in design. While acquiring skills in developing new technology product concepts based on in-depth user studies, I learned that a "desirable" and a technically "feasible" product is not enough to achieve success (Brown, 2008). The product's commercial "viability" becomes a critical litmus test to engage and sustain the interest of the parties involved in an otherwise wonderful product. It is important to find and show where the revenue comes from and to ensure that the primary stakeholders (such as managers, employees, investors, suppliers, customers) are motivated to participate.

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[1] While there are several distinct positions within pragmatism, I tend towards the one articulated by Martela (2015), who builds on John Dewey's work. See Section 1.4 ("Philosophy of Science") for more details.

Enter the business model concept and the business model canvas framework (Osterwalder and Pigneur, 2010). This visual tool that helps to think through the design of some of the fundamental questions of starting a new business seriously captured my attention.

However, while startups and entrepreneurship are fascinating topics, given my previous industry experience, I became curious about the impact of business model thinking for mature, more established companies, which are further in their life cycle. Would it not be valuable for managers of the many existing firms to increase their understanding of how to reinvigorate their businesses? So I began developing my research proposal and in the fall of 2011 I submitted it to an opening at Aarhus University; this ended in my being offered a fully paid scholarship commencing in 2012. Still enrolled in the master's program, I conducted preliminary investigations into the topic as a part of my dissertation work by studying how a product innovation effort in a large company turned into a complex change requiring the rebalancing of many other elements of the business model.

Now in 2016, I can say that overall it took me six years to complete this intellectual journey. The last four years of my dissertation work (2012–2016) were interspersed with expanding personal knowledge boundaries at the demanding doctoral courses, engaging in teaching a variety of bachelor and master level courses, relocating to Switzerland and spending three months with colleagues at the University of St. Gallen (which hosts a very fertile and internationally recognized research environment), discussing my ongoing research with leading scholars at some of the finest academic conferences in the field of management, the Academy of Management Annual Meeting in 2013 and the Strategic Management Society's Annual Conference in 2014, and even spending a year on site with a real-life organization to complete my empirical research.

A brief account of how my research progressed follows below.

1.3. RESEARCH PROCESS

The first major task was to familiarize myself with the relevant literature. Before hoping to be able to push the boundaries of knowledge, one needs to be familiar with what is already known. The problem was that it was not easy to identify these knowns. Having unlimited access to state-of-the-art literature databases that are expanding on a daily basis felt like a blessing and a curse at the same time. Finding the right keywords to retrieve the most relevant papers is far from a trivial exercise. It is especially true in social sciences where scholars may label similar phenomena differently. My first attempts produced more than 10,000 hits. With each paper being 20-40 pages long, reading all of them at an average adult reading speed of 300 words per minute, meant I would need to spend all three years of my PhD only on reading what had already been published in the field. Nevertheless, with the assistance of my advisors, I found my way and report on the outcome in Chapter 2.

After theorizing a possible business model innovation process for established firms as well as the factors of significant influence in this process, the next task was to switch to empirical research and improve these theoretical insights. The idea was to do a number of real-time action research studies with firms willing or forced to renew their business models. I found three such firms and arranged year-long projects with their management. We planned to navigate through the cycles of searching and changing the business model, as suggested by the findings in Chapter 2, and to improve the proposed theoretical model together with the firms in a collaborative manner.

However, the worst nightmare came true when halfway through the PhD project, I was left without a single firm to conduct research with. One company left the project just before the expected start date, stating lack of time to engage in research activities as the reason. The second firm was not willing to change, which I learned through trial and error by proposing

initiatives and not really hearing back. The third company was in fact looking to be acquired, which for me was an indication that unfortunately I had to remove the firm from my sample. My list of three case firms vanished in six months.

I still had about a year and a half ahead of me and I tried to view the future with optimism. I was lucky to establish a good relationship with the fourth firm, this time for a classic non-intrusive case study only to see it go a few months later. The reason here was a board decision: they were too uncomfortable sharing confidential information even under a non-disclosure agreement and despite the CEO's enthusiasm.

From my interactions with firms, I learned the hard way that for a time-constrained PhD researcher like myself, it was too risky to engage in a real-time longitudinal study. The area of my interest is at the very core of the business, and engaging top management is of primary importance should one be set on collecting primary data. Despite early warnings from my advisors, the action research approach just seemed to fit my initial research questions so well and was so tempting to pursue. Working together with the firm's management on their toughest challenge, solving the practical problem and contributing to knowledge all in one project seemed like the best thing to do.

Such experiences can seriously discourage a researcher. In my case, they instead ignited some creative sparks, and in the end I managed to realign my project. The obstacles I encountered in gaining and maintaining access did not mean that my area of interest should be abandoned though, and that no alternative approaches were possible. Actually, firms need not know that they are an object of research. Case studies can be done retrospectively and from a distance. The only remaining problem was how exactly to do such research properly in the field of business models. Which other data sources can one use if not interviews with top management? What are the limitations? How to process those data? There was neither a methodological paper nor any sufficiently disclosed guidance in the empirical papers on business

models. I needed to develop a method, and this is how Chapter 3 came into being.

Further, as I was learning more about business model innovation and firm behavior, I noticed that the field's interest was beginning to shift from an almost exclusive focus on startups to studying more established firms. However, the firm's growth phase was still left somewhat neglected. But why? Would it not be useful to investigate if the firm's business model may actually change during growth? And if it does indeed change, then how? As a result, what then are the possible trajectories that management can consider when planning for growth? Intuitively, one may argue that perhaps the business model should not change when the firm is growing. It seems obvious that when a firm is generating increased revenues, it signals that the business model works well and does not need to be altered. The case study in Chapter 4 digs into this issue and finds out.

As a result of my previous disappointing interaction with firms, I came to realize that the question of one's purely academic interest that is rooted in rigorous literature reviews and one's own sense of what matters, may not necessarily matter for the specific firms that one has access to. To discover what really is important and relevant, it is vital to engage with the organization on a day-to-day basis by essentially becoming a part of it, getting to know the business agenda, building trust with colleagues, and being attentive to the specific problems that the firm runs into.

As Henry Mintzberg puts it, "You have to be out working where things are happening. Nothing happens at the University, nothing happens on the screen, unless you are studying emails. You have to go elsewhere where things are happening." (Busi, 2013: 80). Only then, once a true problem-solving project is warranted, and it matches the researcher's interest, can one accomplish what I personally have always been striving for, i.e. finding a solution to a relevant problem in the real world and contributing to the

knowledge base with transferrable insights that can improve similar problematic situations in other settings.

I was fortunate enough to be given another chance to collaborate with a firm, and this time it worked. Chapter 5 is the result of this engagement, and it can be seen as the hallmark study of this dissertation. The paper presents a design science research project that I conducted over the course of one year while being an embedded "researcher in residence" (Marshall *et al.*, 2014) with an ICT firm. The firm experienced a frustrating and time-consuming process of revising its KPI scorecard that was used by the management to track performance and initiate changes in the business. The project solves this practical problem by designing an improved process and proposes a general guide to designing such processes in other contexts.

What does all this say about the research process?

One thing is certain – research is a messy endeavor. It is far from the image that novices may have about a clinical process that leads to scientific discoveries. There is much doubt and course corrections. Little goes according to plan. Events happen that are out of the researcher's control. Research questions are reformulated along the way. Methods change drastically. The findings are not clear until the very last moment.

But perseverance pays off, and it is bliss when the dots finally connect, everything falls into place, and the previously unapproachable peak seems to be conquered at long last. It feels like a eureka moment… but unfortunately only for a short moment. The psychological state of it and the excitement may be all but gone by tomorrow, when another Everest emerges in the mist.

1.4. PHILOSOPHY OF SCIENCE

It is quite common to reflect on one's philosophy of science in a doctoral dissertation. If one should map the landscape of the variety of these positions, a good starting point is to look at them as a continuum.

At the one extreme, there is a position that is firm in its belief that reality is objective (real), and that by using rigorous methodological instruments, it is possible to apprehend this reality objectively and independently from one's biases. This is positivism with its objective view on the ontology (nature of the world) and epistemology (nature of the knowledge about the world). The role of the researcher here is that of a detached observer who removes himself from the daily conundrum of the world and studies it unobtrusively from a distance.

At the other extreme, the fundamental belief is quite the opposite: reality is solely a product of human cognition and does not exist outside of the human mind and is therefore impossible to know objectively. This is constructivism, where both ontology and epistemology are subjectivist. Consequently, in this worldview, universal theories have no room to exist; there are only discourses. The best that scientists can do is to attempt to understand various perspectives through studying discourses. To complicate the matter even more, the researchers themselves construct and interpret realities through their research activities. Everything is relative in this worldview.

The existence of two extremes was bound to produce a third philosophy that would attempt to reconcile these highly conflicting worldviews. Such a position – critical realism – indeed emerged and owes its existence to the founding father Roy Bhaskar (1944–2014). It postulates that somewhere deep there is an independent objective reality waiting to be discovered (objectivist/realist ontology as in positivism), but there is no way this reality can be known objectively since all people see it differently (subjectivist/relativist epistemology as in constructivism). Researchers should, however, attempt to understand the reality from various perspectives and strive to devise as accurate theories about it as possible, despite their own obvious influence on the way of seeing things. This creates a question that strikes at the heart of the critical realist position. How is it possible to know whether any theories about the objective world are "true" representations if

there is no way of approaching the objective reality and actually examining the correspondence of theories with it?

It is not my mission here to engage in a philosophical debate and attempt to solve the problems of the philosophy of science. I merely aim to reflect on the position that I am most comfortable living and doing research with. This position is none of the three mentioned above.

I find it hard to subscribe to a fundamentally subjective, constructed reality (as in constructivism). The discovery of some universal objective laws guiding the behavior of human beings does not fascinate me either as something to aspire to (as in positivism). What I do care about though, is the ability of theories to solve problems that human beings encounter in their lives. The production of useful normative guidance that can help people cope with real challenges in their lived experiences is what matters to me. In this position, the question of whether there is one objective reality or many subjective worlds is simply irrelevant.

Further, I understand very well that an individual researcher's way of seeing reality is a way of not seeing for another researcher. Therefore, I find it hard to believe in the possibility of a truly independent of individual cognitive bias, objectively conducted research (as in positivism). However, this does not mean I fully align with the subjectivist view of epistemology and search to understand different discourses (as in constructivism) or to reveal underlying structures (as in critical realism).

Instead, my epistemological approach is aligned with the idea of fallibilism, i.e. that our knowledge about the world is inherently imperfect; what we think is true/useful today in this particular context, including the applied methods to devise this knowledge, can turn out to be flawed tomorrow, and that is fine. Moreover, the value of theories, concepts, hypotheses and propositions to me is in their service as good enough instruments to achieve practical consequences, i.e. improvement of human

lives or, in the case of organizations, improvement of organizational performance, as one example among many other practical ends.

These considerations when made explicit subscribe me to **pragmatism** – as recently well elaborated by Martela (2015). A brief account of this philosophical position and its main differences from other established paradigms is provided in Table 1.1.

Table 1.1. Pragmatism compared to other established paradigms (Martela, 2015)

	Positivism	Critical realism	Constructivism	Pragmatism
Ontology	Realism	Realism	Constructivism	Experientialism
Epistemology	Correspondence	Interpretive relativism	Interpretive relativism	Fallibilistic instrumentalism
Aim	True and accurate theories	As accurate theories as possible	Understanding different perspectives	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

Pragmatism is not a new philosophy. Its origins can be traced back to the 1870s in the United States; its founding fathers are considered to be Charles Sanders Peirce (1839–1914), William James (1842–1910), and John Dewey (1859–1952). After a period of a decline in influence, this philosophy has been experiencing a revival since the 1970s (Hookway, 2015).

The knowledge generated in this paradigm is particular, that is non-generalizable beyond the context of the study, though it may be useful and applicable in similar contexts. According to Dewey, in a pragmatic inquiry "we begin in a situation where we don't know our way around, and inquiry comes to an end when we do" (Hookway, 2015). The outcome of such inquiry, for pragmatists, takes the form of "warranted assertions", i.e. something that we are ready to act upon but that remains open for change in the future (Martela, 2015). Therefore, all insights that I advance in this

dissertation are stated as propositions which may influence outcomes but which are not claimed to work in all contexts under all circumstances. If they are helpful to at least some upper echelon managers, who are the primary benefactors of my research here (and whom I explicitly identify in the ethical tradition of disclosure in pragmatism), wanting to improve the practice of strategic management in their firms, the insights should be considered valuable.

The pragmatic instrumentalism does not mean that any solution is good as long as it seems suitable in a particular situation. For any assertion (conclusion) to be warranted, it has to be developed through an inquiry process that is credible (Martela, 2015). Therefore, the papers included in this dissertation attempt to disclose the methods in as much detail as seemed sufficient.

The way of reasoning most closely associated with pragmatism is "abduction" (Martela, 2015). Pragmatists neither recognize that there is such a thing as value-free inquiry, where theories are formulated from the data inductively, nor do they subscribe to a view that it is possible to deductively devise hypotheses for further testing in the world of practice without actually being influenced by past practical experiences. Therefore, it is an iterative interaction between theories and experiences, namely abduction, which characterizes pragmatic research like the one presented in this dissertation. My current research practice is certainly influenced by the industry experience I acquired in the past and which I am still acquiring as a practitioner of research today. This inevitably impacts the questions I find relevant to pursue, the methods I choose to employ, and the interpretations I derive and further refine by engaging with relevant literature.

Below I reflect on the implications that the adoption of the pragmatic worldview has had on each of the included papers.

The first paper (Chapter 2) is a conceptual paper based on a systematic literature review. The purpose of this paper stems from the

practical problem of managers not exactly knowing how to innovate the business models of their firms (experienced problem). The paper offers such guidance by tapping into the vast academic literature and synthesizing a possible process to the best of our common knowledge (active interpretation). Furthermore, it proposes that the process is facilitated and inhibited by a number of factors which the managers should be aware of. When applied in practice, the process and its drivers are expected to facilitate a smoother replacement of the business model when the situation necessitates such change (warranted guidance). A more suitable process for a variety of situations and a more elaborate account of different factors may certainly be developed later, but at the moment this is the best offer (fallibilism). The choice of method was driven by pragmatic considerations too: a literature review allows using decades of knowledge creation readily available in a rather condensed format and retrievable within a relatively short timeframe. As a useful outcome for future researchers (who are in fact the practitioners of research and hence also the audience I address in my practice-guided inquiries), the paper offers a set of propositions for further empirical tests, thus saving time.

The second paper (Chapter 3) is in fact a preparation for the third paper. Its primary users are expected to be other researchers who are searching for an elaborate technique to analyze business model change (experienced problem) rather than actual managers searching for guidance in managing change. The paper offers a concrete approach to the analysis of secondary data disclosed by firms in their reports (warranted guidance). The purpose of using secondary data in combination with retrospective research design proposed in this paper is obviously to ease the pain of gaining access to primary data and of conducting otherwise time-consuming studies in real time with no guaranteed outcome (warranted guidance). The limitations of such an approach are recognized and discussed in the paper (fallibilism). The real value of this paper, however, lies in promoting and illustrating the tabulation and visualization techniques that trigger the analytical process in

the mind of the researcher (warranted guidance). It has indeed been a mystery how qualitative case data can be processed to develop close familiarity with and at the same time to raise the level of abstraction and build theory (experienced problem).

The third paper (Chapter 4) applies the proposed technique to the practice of research, thus in fact subjecting it to a test. In doing so, I discover three possible strategic trajectories a firm can follow in changing its business model. A way of thinking strategically about the firm's further development is something that management is likely to be interested in (experienced problem), and this paper offers three plausible ways to consider and choose from (warranted guidance). While these directions have not been tested with other firms and can be questioned in terms of their usefulness (fallibilism), the pragmatic approach does not necessitate the actual application of the solution to practice. It is not always practical or even possible to conduct such tests. This, however, leaves the challenge open for future research, which is a useful outcome.

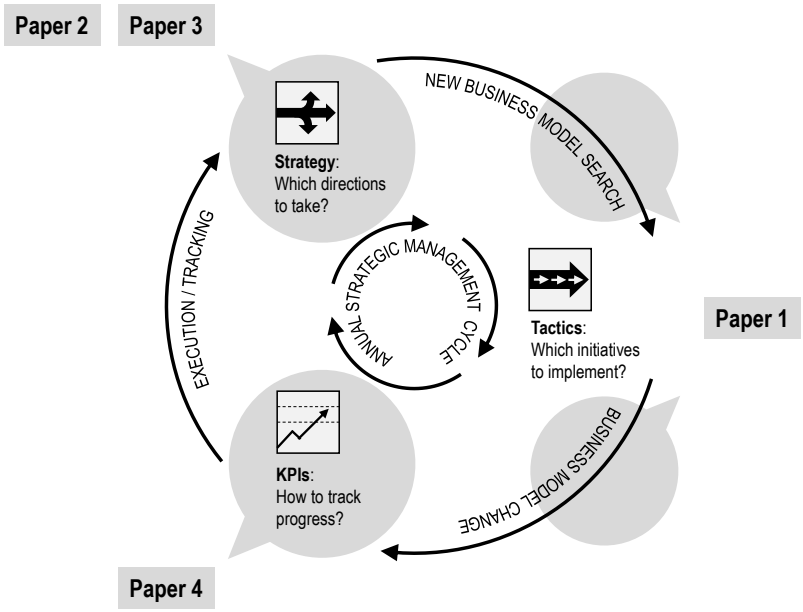
The fourth paper (Chapter 5) begins with a real problem experienced by a multi-subsidiary firm in the dynamic ICT industry. Management was looking to improve (warranted guidance) a frustrating and time-consuming KPI revision process that led to the production of irrelevant performance metrics for the daily management of the local businesses (experienced problem). Furthermore, it being a process that occurs only once a year, the management was losing the opportunity to adapt the business model to the demands of the rapidly changing environment between the annual procedures. Following an investigation of individual employee experiences of the process though focused in-depth interviews as well as insights from the literature, I designed a new process and further verified it with the stakeholders at the local subsidiary level, including upper echelon managers. The process that I went through during this practical design project has allowed me to produce a more general guide for "bottom up" process (re)design, which already in its current form can be useful in similar tasks in

other organizations (capability for warranted guidance), but is suggested to be tried and tested further in new contexts for further tweaking and refining (fallibilism). The design science approach used in this paper is one of the hallmark methodologies in the pragmatism tradition.

1.5. CONCEPTUAL STRUCTURE OF THE DISSERTATION

This dissertation consists of four papers. Their conceptual relationship is displayed in the diagram below (see Figure 1.1).

Figure 1.1. Conceptual relationship between the papers included in the dissertation



An annual strategic management cycle at an established firm classically involves three key processes (see e.g. Kotler, Berger, and Bickhoff, 2016): *strategy planning* to identify and choose possible directions for several years

into the future (also known as "strategic theme" (Porter, 1987) or "strategic intent" (Hamel and Prahalad, 2005)), then *tactical/operational planning* to select a set of more concrete initiatives for implementation during the next year, and finally *establishing key performance indicators* to track the progress, which further inform the next cycle by directing the management's attention to underperforming areas and thus triggering changes in strategy and/or tactics.

When a chosen direction assumes alterations in the firm's existing activity system (which, truth to be told, do not necessarily always need to happen), a way to think about further development is offered in **Paper 3**. There, three possible trajectories of business model change from the core (i.e. the present business model) are conceptualized based on a case study of a rapidly growing firm. These trajectories are (i) enhancing the core, (ii) "unlocking the nucleus" inside the core, and (iii) expanding beyond the core business model. The methodological approach to distill these trajectories is developed in **Paper 2**. The same technique (that utilizes publicly available data) can also be used to generate valuable inputs for the same strategy planning process by tracking the behavior of competitors, potential acquisitions targets, partners, and industry role models.

Strategic conversations (cf. Von Krogh and Roos, 1995; Liedtka and Rosenblum, 1996) about where to go and how to get there kick off search behaviors among the staff involved, such as e.g. senior and middle management as well as professionals in business development, product and marketing. Backed up by solid business cases, these search processes produce more concrete, tactical initiatives to be implemented during the coming year. The implementation of those initiatives that amend the firm's business model effectively makes the business model change happen. To help managers better understand these phases of business model search and change, **Paper 1** offers some guidance and identifies the critical factors that may influence the successful completion of the overall business model innovation process.

Finally, the environmental events outside of the firm's control, and the firm's developed strategic and tactical responses, may necessitate rethinking some of the metrics that management uses to monitor performance. A way to go about this is developed in **Paper 4** via a design science research project. The paper studies the KPI revision process in a subsidiary of a global corporation operating in a dynamic industry, and develops a new process design that also other firms can use and further adapt with the help of a more general five-step guide to (re)designing such processes.

The concluding part of the dissertation summarizes the main contributions and further research directions, whereas the more detailed discussions of each paper's results are included in the respective papers.

2. BUSINESS MODEL INNOVATION AS A PROCESS[2]

To synthesize a process of business model innovation in established firms, this paper surveys classic and more recent literature in the fields of business model innovation, organizational change, strategic renewal, corporate entrepreneurship, business development and turnaround. It further identifies key barriers and drivers and proposes an agenda for future research. We find that the business model innovation process can be conceptualized as two cycles, search and change. The positive outcome of business model search depends on the firm's ability to understand the environment, the presence of entrepreneurial people, the commitment of senior management, and the dedication of resources and funding. The success of business model change in turn is largely driven by the commitment of the firm's senior management, the involvement of the firm's middle management and employees, the change implementation process, and new technology. The developed propositions provide a valuable foundation for future empirical studies on how established firms can manage the process of business model innovation/renewal in response to increasing environmental dynamics.

[2] This chapter is co-authored by Sergejs Groskovs and John P. Ulhøi. It is a fundamentally revised version of an earlier paper draft accepted and presented at the Academy of Management Annual Meeting 2013 in Orlando as "Business Model Renewal: Process, Barriers and Drivers" by Groskovs S, Ulhøi JP and Kesting P.

2.1. INTRODUCTION

It is generally recognized that business models are of corporate strategic importance (Zott and Amit, 2007). It is of critical importance as to how the business model of one firm interacts with those of the other players in the industry (Casadesus-Masanell and Ricart, 2011), and how a switch between business models within the same firm can be accomplished (Doz and Kosonen, 2010). While a positive relationship can be expected between strategic activities targeting business model renewal and the performance outcome (Teece, 2010), the exploitation of radical business model innovation often remains an untapped potential (Mitchell and Coles, 2004).

Despite its recognized strategic importance, the process of business model innovation remains poorly understood (Bucherer, Eisert, and Gassmann, 2012). An extensive literature review by Zott *et al.* (2011) identified some emerging common themes among scholars of business models: (i) the business model is emerging as a new unit of analysis distinct from the product, the firm, the industry or the network; (ii) business models emphasize a system-level, holistic approach to explaining how firms "do business"; (iii) a firm's activities play an important role in various conceptualizations of business models that have been proposed; and (iv) business models seek to explain how value is created, not just how it is captured.

The categories of activities commonly used in the business models literature are those of value creation, value delivery and value capture (Chesbrough and Rosenbloom, 2002; Osterwalder, Pigneur, and Tucci, 2005; Teece, 2010). These processes can also be referred to as core repeated business processes (Cavalcante, Kesting, and Ulhøi, 2011). The business model concept can also be understood as a particular case of the generic value chain (Porter, 1985), sometimes spanning into the broader value system, fine-tuned and re-arranged for a particular focal firm (Amit and Zott, 2012; Zott and Amit, 2010). Business models have further been defined as

bundles of structured and interdependent operational interrelationships between a firm and its internal units and departments and its customers, suppliers and partners (Doz and Kosonen, 2010).

Here, the term "business model" refers to the set of activities associated with value creation, value delivery and value capture conducted by the focal firm and its collaborators to earn profit. It is a static, high-level concept which allows business processes to be described as if frozen in time. It is a snapshot, a still picture, which is subject to change from one state to another when needed. In our view, the value of the business model remains to be nested in the linkages it creates between the environment and the focal firm's internal operations thus allowing the attainment of a good fit between the two and securing financial gains.

Despite the dynamic environment, there is still room for upper echelon managers to exercise "strategic choice" and influence the design and performance of the firm. According to Child (1972), managerial strategic action may include a move into or out of given markets promising high profits; it may also involve an attempt to establish a configuration of human resources, technology, and structure which is internally coherent as well as consistent with the scale and nature of operations. The "goodness of fit" that is achieved is seen to determine the level of efficiency, which is expressed by output in relation to costs. The conjunction of efficiency with demand will determine the organization's overall level of performance.

From the perspective of the overarching fit theory (Huber, 2011: 129), we argue that the business model concept may serve as a valuable link between the external contingencies and the internal architecture of the firm. Business model innovation may serve as a strategic renewal activity and may help managers to align their firms in accordance with the changing market needs, i.e. to attain the right fit between the business model and the environment.

It has long been known that the periods during which the fit between the key requirements of a market and the particular competencies of a firm competing in that market is at an optimum, are limited (see e.g. Abell, 1978). Eisenhardt (1989a) also indicated that in highly uncertain environments, the greater the speed of strategic change, the better the firm's performance. Hence the faster the firm is capable of capitalizing on the open "strategic window", the more value it can appropriate before new competitors appear or industry incumbents retaliate.

In the light of increasing environmental dynamics and time constraints, the problem of the speed of business model innovation is bound to be of high importance to the strategic management of the firm. A change of the business model is certainly a difficult process with many barriers on its way to successful and timely completion. What are these barriers? And, on the contrary, what are the drivers of business model renewal? To find out, this study taps into the vast literature in the fields of business model innovation, organizational change, strategic renewal, turnaround, business development, and corporate entrepreneurship.

The paper is organized as follows. Following the introduction, we describe how we conducted our systematic literature review, which is a primary data source for this paper. Then, we proceed to conceptualize the process of business model renewal. After that, we describe our findings from the literature on barriers and drivers of business model renewal. We finish the paper with a set of propositions for further empirical investigations and a discussion of the findings.

2.2. METHOD

We first searched for useful contributions in earlier seminal works in the broad organization and entrepreneurship literatures with the aim of finding valuable cues. This attempt produced 32 papers which aided to synthesize a generic high-level process of business model renewal discussed in Section 2.3.

Table 2.1. Database query construction

QUERY NAME	QUERY		BARRIER		DRIVER
Business development	"business development"	AND	(barrier* OR obstacle* OR break* OR prevent* OR imped* OR slow* OR fail*))	OR	((driv* OR enabl* OR facilitat* OR speed* OR accelerat* OR fast OR success* OR succeed*)
Renewal / turnaround	(firm OR compan* OR corporat* OR organization* OR organisation* OR strateg*) AND (renewal OR turnaround)				
Corporate entrepreneurship	("corporate entrepreneurship" OR intrapreneurship)				
Organizational change	("organisational change" OR "organizational change")				
Business model innovation/ change	"business model innovation" OR "business model change"	—			

We then conducted a systematic literature search for additional insights to uncover what may already be known about the drivers and barriers in the process of "business model innovation". The following databases were used: ABI Inform, Web of Science, Scopus, and Business Source Complete. The queries (see Table 2.1) included common synonyms for barriers and drivers in combination with processes that we considered to be similar to or of relevance to business model innovation. We limited the publication outlets to peer-reviewed only (where available), the publication language to English, and searched only in titles, abstracts and keywords.

Table 2.2. Number of entries returned by each query from each database

QUERY NAME	ABI INFORM	WEB OF SCIENCE	SCOPUS	BUSINESS SOURCE COMPLETE	Total
Business development	412	397	804	347	1,960
Renewal / turnaround	691	1,544	1,081	602	3,918
Corporate entrepreneurship	134	166	137	120	557
Organizational change	1,265	1,945	2,082	1,238	6,530
Business model innovation / change	71	89	124	120	404
Total	2,573	4,141	4,228	2,427	13,369

The total number of returned entries from all four databases was 13,369 (see Table 2.2). We imported the extracted references into the Mendeley reference management software, which automatically detected and eliminated identical entries. As a result, we started up with a database of 10,457 papers.

We then cleaned the database by scrutinizing paper titles and their publication outlets and deleted irrelevant entries. The single survival criterion for a paper was that it must be about a change in core business processes (business model) at already existing for-profit organizations (firms). Upon removing the entries that did not correspond to the survival criterion, our reference database shrank to 5,514 entries. We then used the "Check for duplicates" function in Mendeley to manually detect and remove duplicates which were not eliminated by Mendeley automatically. The result of this manipulation was a database of 4,851 entries.

Due to a still enormous number of papers, we decided to focus on titles in our reference database: we searched for barriers and drivers (using the barrier or driver part of the query as depicted in Table 2.1) only in titles. Thus the database was condensed to 723 entries, and further to 656 entries by re-running the "Check for duplicates" function. Finally, we read all abstracts and deleted the papers which did not correspond to the survival criterion mentioned above. The final database shrank to 65 papers, which subsequently underwent careful examination for the factors that can potentially influence the success of business model renewal.

2.3. A PROCESS OF BUSINESS MODEL INNOVATION

2.3.1. TWO CYCLES: SEARCH AND CHANGE

Business model innovation assumes a change in or of the business model. Over the last decade, a number of contributions have attempted to address

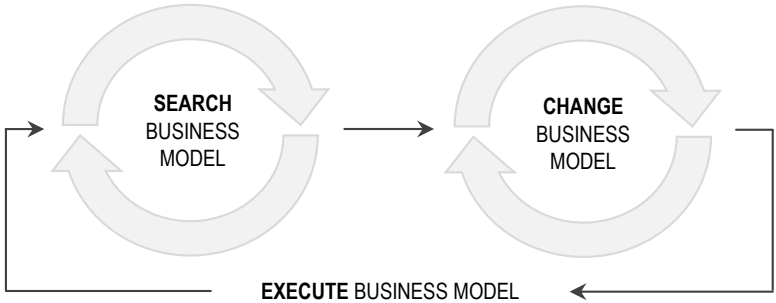
the process of business model innovation. For example, Morris *et al.* (2005) envision a business model life cycle with the periods of specification, refinement, adaptation, revision, and reformulation of the business model. Cavalcante *et al.* (2011) propose four different types of business model change: creation, extension, revision, and termination. They further underline that only changes that affect the core standard repeated processes of a business model constitute a change in the business model.

Business model innovation, we argue, can be conceptualized as a two-cycle process. We view them as iterative cycles rather than as linear stages, because we acknowledge that trials, errors and learning opportunities in the form of going forward and backward may occur throughout the entire process. When a firm acknowledges a significant threat or recognizes a potentially lucrative business opportunity, it can be expected to *search* for a new business model to attain the fit between the requirements of the new environment and the firm's core business processes. As the new, better suiting business model is discovered, the firm is likely to break free from the existing business routines and *change* the extant business model with the new one.

Hence, we propose that the two cycles of business model innovation are search and change, followed by a rather linear execution stage in the period of relative environmental stability (see Figure 2.1).

While the search for a new business model is normally associated with entrepreneurial behavior, in particular, experimentation and discovery-driven approach (Chesbrough, 2010; McGrath, 2010; Sosna, Trevinyo-Rodríguez, and Velamuri, 2010) and open innovation with partners and customers (Chesbrough, 2006), the change of the business model largely lies in the realm of organizational change.

Figure 2.1. Iterative cycles of business model search and change followed by execution



2.3.2. BUSINESS MODEL SEARCH

Normally business model search would not be considered a core process or a part of the extant business model, therefore additional resources, most notably human and financial, are required to conduct new business model search activities. Where are such resources to be found?

Galbraith (1973), for example, brings up the idea of organizational slack, which can be created by intentionally lowering a firm's performance standards in this way providing some ease in the system. March and colleagues also note that organizational slack is a critical resource supporting organizational experimentation and learning (Cyert and March, 1963; Levitt and March, 1988). They point out that search motivated by slack – rather than by immediate problem-solving pressure – is "less likely to solve immediate problems, more likely to be directed to subunit or individual objectives, and more likely to discover distinctively new alternatives" (Levitt and March, 1988: 4).

Another suggestion of relevance to entrepreneurial agency is the idea of "bricolage" (Baker and Nelson, 2005) – making do with what is at hand –

which explained many of the behaviors in small firms that were able to create something from nothing by exploiting physical, social or institutional inputs that other firms rejected or ignored.

The possibility of an entrepreneur's proactivity to shape and construct the future rather than predict it makes its way further into the idea of "effectuation" (Sarasvathy, 2008). The idea of effectuation may imply that since there is no objectively existing opportunity waiting to be recognized, seized and exploited with the right business model, there is no "right" business model to search for; rather, any business model chosen by the entrepreneur will create the market and generate the flow of profits.

However, this sounds too good to be true. Even if the entrepreneur can minimize the impact or even leverage some environmental contingencies, most probably other, higher-order and out-of-control limitations urging the entrepreneur to learn how to deal with them and seek the optimal fit may exist. Such ideas may point towards the notion of "experiential learning" (Hedberg, 1981; March, 1988) as opposed to long-term strategic planning and conventional rational decision-making. As noted by Scott and Davis (2007: 201), "whereas rational system models propose that technologies are known, learning models stress that they must be continuously invented, shaped, and modified in the light of feedback from the environment".

Recently, the works of Blank (2005), Blank and Dorf (2012) and Ries (2011) have attracted attention among startup founders and venture capitalists. They develop their ideas around the business model canvas framework (Osterwalder and Pigneur, 2010) and argue for a hands-on, cost-efficient, trial-and-error approach to discovering a viable business model for a new product, technology or business idea.

After having recognized an opportunity or a threat to the present way of doing business, the search for a superior business model can proceed as follows: (i) acknowledging contingencies of the new environment; (ii) identifying obvious and hidden capabilities and resources within the reach

of the firm; and (iii) generating as many combinations of business processes (business models) as possible that seem to fit with the acknowledged environmental contingencies.

The transitional step to the business model change cycle is then selecting the best-fitting business model to implement later, for example, based on testing several versions on a small scale. Alternatively, the best-fitting business model may also *emerge* in this process rather than be pre-developed and selected.

2.3.3. BUSINESS MODEL CHANGE

The change of a set of business processes from one to the other is closely related to organizational change and, if pursued deliberately, organizational design.

Huber (2011) portrays organizational design as the process of choosing configurations of organizational attributes – specific attributes for the features of strategy, core technology, structure, employees, culture, and routines. These areas of concern in organizational design and change planning can be traced back to Miles and Snow (1978), who see organizational adaptation as a dynamic adaptive cycle potentially requiring a simultaneous solution of three major problems: entrepreneurial (domain definition), engineering (technology), and administrative (structure-process and innovation) problems. It is important to note the cyclical and simultaneous nature of the proposition. In light of Miles and Snow's work, the business model appears deeply interlinked with the firm's domain definition "at the top" and the firm's structural design "at the bottom" and, in fact, seems central to the solution of the triplet problem.

But which business model among many alternatives is likely to be chosen for implementation? Van de Ven and Poole (1995) argue that in general there are four ideal-type theories of organizational change: the immanent program of life cycle theory, the purposeful enactment of

teleological theory, the conflict and synthesis of dialectical theory, and the competitive selection of evolutionary theory. These motors may come into play in organizational change and development as part of another or independently from each other, at a different time or simultaneously, and either reinforcing or contradicting each other. It is reasonable to assume that business models will not self-select. Instead, authority will be utilized to pick those technologies (i.e. business models as technologies of doing business) that advance the interests of dominant players (Thomas, 1994), who form coalitions within the organization (Cyert and March, 1963). It therefore seems reasonable that the choice of the new business model and its implementation may very much depend on the outcome of the negotiation process among coalitions and among members of the dominant coalition.

This leads us to consider the question of what exactly may be changed in the business model change cycle. Despite the spreading mechanization and automation of production and decision-making, as concluded by Simon more than half a century ago, human labor will never be completely replaced by machines. Only the routines at the lowest level of the hierarchy and partially at the middle level (day-to-day governance) are at the risk of being automated; these are the routines that can be programmed, whereas the highest level of designing and re-designing systems, and partially the middle level, are predicted to remain human (Simon, 1960).

Since much of the knowledge on which the organization relies is contained in the skills and tacit knowledge of its workforce (Nelson and Winter, 1982), we argue that the biggest challenges during business model changes are likely to be associated with the necessity of changing human mindsets, skills and behaviors. However, a more recent argument by Winter, namely that "no individual knows how the organization accomplishes what it does, much less what alternatives are available" (Winter, 1994: 99), points to an almost transcendental nature of some business processes which are not a part of the individual tacit or explicit level but which are rather a glue

between individuals keeping them together in the processes of value creation, value delivery and value capture.

2.3.4. FROM SEARCH TO CHANGE TO EXECUTION AND BACK

If we think about the firm's interaction with the environment and possible managerial responses via business model renewal, they may look as follows.

When confronted by increasing environmental dynamics, managers may prefer to protect the technological core by establishing a buffer interface between irregularities at the external boundaries of the internal input-output transformation process (Thompson, 1967). They may also adopt a more proactive organizational "ambidexterity" (Duncan, 1976) approach as a balancing act between knowledge exploitation and exploration (March, 1991). By allowing exploratory and exploitative units in the organization to work somewhat independently, they may further accept the idea of slight imperfection in the organization in the form of "loose coupling" (Orton and Weick, 1990). And finally managers may institutionalize change by developing "dynamic capabilities" (Teece, Pisano, and Shuen, 1997) so as to allow their firm to reconfigure its attributes and quickly attain new capabilities and fit with environmental contingencies. Balancing the two opposing processes of exploration and exploitation (March, 1991) seems to be the key here.

Whereas Scott and Davis (2007: 201) note that the horizon determines where the weight should shift – "the longer the time horizon used, the more "rational" it is to tilt the balance from exploitation to exploration" – and other authors advocate for a complete fluidity of organization, Schreyögg and Sydow identify a paradox in hosting both stability and fluidity in one organization. "Redesigning organizations as 'relentlessly changing' and being in a 'continuously unstable state' is too easy and neat a solution" (Schreyögg and Sydow, 2010). In consequence, they propose an alternative conceptualization that suggests a concurrent balancing of both contradictory

demands of stability and change as a meta-level process that permeates the system through surveillance and the identification of critical information and change necessities.

In a similar vein, Volberda (1996) argues that organizational flexibility is inherently paradoxical and requires constructive friction between change and preservation. He proposes four types of organizational forms where each type must match the environment: the rigid form works best under low competition, the planned form under moderate competition, the flexible form under hyper-competition, and finally the chaotic form, which is entirely controlled by the environment rather than management but nevertheless can be useful for exploration of new opportunities, when firms are facing advancing hyper-competitive conditions.

In light of the exploration-exploitation debate, our view of the business model renewal process includes exploration activities (as business model search), but not exploitation (business mode execution). Further, we see business model change as a shift from exploration to exploitation (see Figure 2.1). The execution of the business model is a normal state of affairs, so called "business as usual", i.e. the repeated execution of core business processes until the next time comes to engage in exploratory activities and find a new fit with the changed environment.

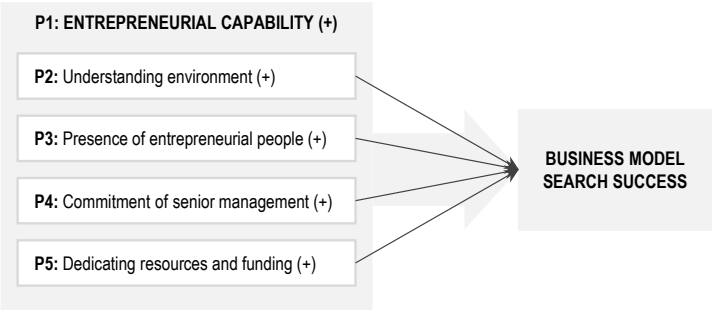
It can also be said that with the increasing dynamism of the environment, calm and undisturbed business-as-usual remains a fading memory of the past. The business model execution stage therefore can be seen as an ideal theoretical mode that may not exist in the real world. As change is becoming imminent and omnipresent, the cycles of business model search and change take place simultaneously and repeatedly, leaving really no time for peaceful execution.

2.4. DRIVERS AND BARRIERS OF BUSINESS MODEL INNOVATION

2.4.1. BUSINESS MODEL SEARCH

Despite the recent rise of academic interest in business model innovation, the literature stream remains new and relatively underdeveloped. Therefore, to map the factors influencing business model search, we largely borrow from the field of corporate entrepreneurship, and for the business model change cycle from the organizational change literature. The combination of the two streams allows us to develop an overarching view on the barriers and drivers of business model innovation. A barrier here refers to something prohibiting, breaking, impeding, or standing in the way of a successful outcome. A driver is understood as something facilitating, enhancing, improving, or leading to the successful outcome of the process.

Figure 2.2. Drivers of business model search



Our findings suggest that in order to succeed in finding a new working business model in the search cycle, managerial attention should be directed to developing the firm's entrepreneurial capability in the first place. This capability is largely formed by the following activities: (i) understanding the environment, (ii) presence of entrepreneurial people, (iii) commitment of

senior management to new initiatives, and (iv) dedicating resources and funding to new initiatives (see Figure 2.2).

An elaboration explaining each of the driving forces and leading to concrete propositions follows below.

Entrepreneurial capability. To create a major change in the industry, the firm needs an intelligence capability to recognize the potential implications of a new product and a capability to mobilize the organization and exploit this potential (Strebel, 1995). There are a number of lessons for mature corporations to learn from Silicon Valley's venture capital-backed "lean startups" pursuing rapid evolution and market penetration, such as the formation of A-teams, prioritization of high-growth markets, development of products that address real customer pains, quick product iterations based on customer interactions, early market tests with fast and cheap failures, agile product development, stepped financing before the business model is validated, and generous investment after validation (Engel, 2011). A way to facilitate new business search and development can be corporate venture funds that finance new employee ideas and select the best for integration into the parent company (Kanter *et al.*, 1987).

A study of a knowledge-intensive firm in Denmark, Danfoss Drives, revealed that there are eight factors that enable corporate entrepreneurship – communication means and modes, collaborative and involving culture, project management process supporting innovation rather than production, culture-specific rewards, top management support, financial resources, organizational structure by project groups, and risk management – all of which are interrelated (Christensen, 2005). Further, a survey of Chinese firms discovered that entrepreneurial orientation and strategic flexibility have a positive impact on the speed of strategic change (Li *et al.*, 2011). The responsibilities of senior management thus are to provide a supportive climate, to structure the organization so it behaves as though it were small and entrepreneurial like back in the old days, to instill a sense of urgency, and

to define a clear growth strategy that would allow the operating levels to select and pursue the right opportunities (Day, 1993). The creation of the sense of urgency psychologically stimulates people to explore and learn outside of their naturally preferred stable worlds (Schein, 1993).

There may be some catches with too much innovation though. Introducing too many new business initiatives at once can dilute the focus of the company, as evidenced by a case of Hewlett-Packard in the late 1980s (Birkinshaw, 1998), or even lessen its chance of survival, as a study of the US semiconductor industry demonstrates (Barnett and Freeman, 2001). Too early consolidation of an entrepreneurial activity into the parent corporation can lead to the under-development of the initiative (Kanter *et al.*, 1987), but a lack of success of the initiative almost certainly creates unemployment for the employees involved (Birkinshaw, 1998) and thus can destroy the firm's entrepreneurial capability in the first place by scaring people away from new undertakings.

The issues raised above can be broadly united under the category of "entrepreneurial capability" of the firm, and the following proposition is put forward:

> **Proposition 1**: The firm's (lack of) entrepreneurial capability positively (negatively) influences the discovery of a new business model.

The following paragraphs more thoroughly discuss some of the most essential factors facilitating or inhibiting the firm's new business model search.

Understanding the environment. A survey of the German dental lab industry has shown that firms with a high degree of market sensitivity continuously scan existing and potential markets thus being able to develop a timely response to discontinuous change (Bockmühl *et al.*, 2011). The ability to understand and adapt to a suddenly changed market may come from the previously developed competence in serving similarly dynamic markets, as demonstrated by a study of the Indian woolen knitwear industry after the

collapse of the Soviet export market where interacting with buyers in new export markets proved to be important (Tewari, 1999).

One of the important environmental factors is customers. Offering a superior product that meets customer needs, extensive market information gathering, and the involvement of lead users is known to condition successful corporate renewal (Day, 1993). Experimentation with possible business models on real customers can be a viable way to discover the right way of doing business in a changed environment (Chesbrough, 2010; Engel, 2011). Another environmental factor is industry partners such as suppliers and channels. A global CEO survey, for example, found that business model innovation focusing on external collaboration with partners is one of the most fruitful strategies leading to success (Giesen *et al.*, 2007), further emphasizing the importance of interaction with the environment. Finally, the firm's external political environment should not be ignored. Failure to sense change and engage with the firm's institutional context may lead to the demise of even the biggest corporations, such as for example the Russian oil giant Yukos (Dixon and Day, 2010).

Hence the firm's ability to understand its environment is expected to have a positive effect on the search for the right business model:

> **Proposition 2**: The firm's (lack of) ability to understand its environment positively (negatively) influences the discovery of a new business model.

Presence of entrepreneurial people. New business opportunities may arise from high achievers, and other entrepreneurial individuals are likely to gather around them organically (Engel, 2011). The diversity of the team's knowledge bases, professions, disciplinary backgrounds and other demographic characteristics further stimulates innovation (West *et al.*, 2004). By providing resources and the creation of a climate that encourages risk taking is known to support committed champions and thus fuels corporate renewal (Day, 1993; West *et al.*, 2004). It is recognized that rewards motivate employees' entrepreneurial behavior (Strebel, 1995; West *et al.*, 2004), but

these rewards must be selected differently for different cultures and individuals (Christensen, 2005). It is important to remember that a small compensation tied to the small size of a new business, in relation to the parent corporation, may look unattractive to potential corporate entrepreneurs and may not attract them to initiate or join new initiatives (Kanter *et al.*, 1987). A solution to misaligned incentives and frustration can be the entrepreneurial management's buyout of the business (Wright, Hoskisson, and Busenitz, 2001). Entrepreneurs are accustomed to making mistakes and learning quickly through fast and cheap failures (Engel, 2011). Therefore a culture that accepts and encourages experimentation can drive innovation (Chesbrough, 2010; Doz and Kosonen, 2010; West *et al.*, 2004) by attracting such people. Allowing experimentation also encourages people to leave their comfort zones where new business opportunities may lie (Schein, 1993). Cultural change normally takes years, but it can be achieved faster if the behavior of actual doing is encouraged contrary to long preparations and trainings prior to action (Jick, 1995).

The presence of entrepreneurially minded people is therefore anticipated to drive the new business model search process:

> **Proposition 3**: The presence (absence) of entrepreneurial people in the firm's staff positively (negatively) influences the discovery of a new business model.

Commitment of senior management. Top management's support has been widely noted as a prerequisite for successful launch and maintenance of new business initiatives (Christensen, 2005; Strebel, 1995; West *et al.*, 2004). Just as an unsupportive climate can swiftly crush experimentation, a supportive management team that believes new products and new directions are significant for future growth can invigorate the firm (Day, 1993). Senior management's commitment towards learning the best practices and choosing to implement the most appropriate ones is the first step on the way to speedy and effective change implementation (Atkinson, 1995). Established firms can only react to technological change if their

decision-makers can modify their mental models, including their fundamental beliefs and assumptions (Bockmühl *et al.*, 2011). Altering mental models, however, is not a trivial task. Dialog as a form of reflective conversation can be helpful in changing managers' mindsets and fostering strategic innovation of the business model (Jacobs and Heracleous, 2005) and in developing leadership unity about which of the possible business models to choose (Doz and Kosonen, 2010). It is worth noting that CEOs do not always play a central role in identifying and developing new business models, but their attention and interest are critical to turning such efforts into success (Mitchell and Coles, 2004).

Senior management's commitment to new initiatives is consequently suggested to have a positive influence on new business model search:

> **Proposition 4**: The (lack of) commitment of the firm's senior management positively (negatively) influences the discovery of a new business model.

Dedicating resources and funding. It goes without saying that commitment is nothing without backing of dedicated resources and funding (Christensen, 2005; Engel, 2011). Attracting financing to new initiatives can be difficult, but demonstrating prior successes can help win the argument with the resource allocation committee (Engel, 2011). Lack of funding almost certainly means no opportunities to recruit appropriate and experienced staff for the new business, which tends to block further development (Kanter *et al.*, 1987). A way to encourage new ideas is the establishment of an internal market where the best ideas win financial support. However, costs of administering such a market should be considered (Birkinshaw, 1998; Kanter *et al.*, 1987).

We conclude with the final proposition positing that the availability of resources and funding is yet another important factor to consider when embarking on a business model search journey:

> **Proposition 5**: The (un-)availability of resources and funding positively (negatively) influences the discovery of a new business model.

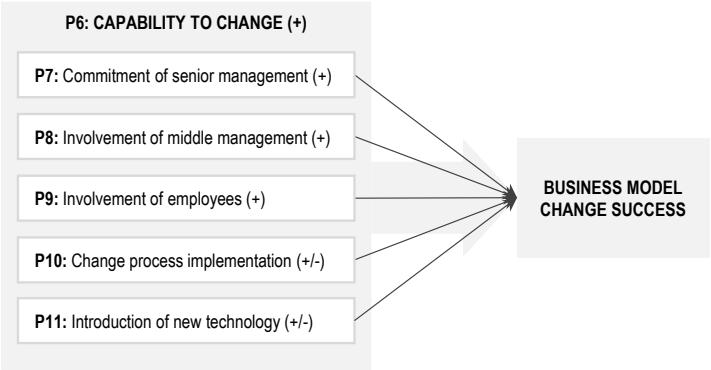
We now proceed to the business model change cycle and discuss its drivers and barriers in the following section.

2.4.2. BUSINESS MODEL CHANGE

Later, when the firm transitions into the business model change mode, the successful outcome, that is, the implementation of the change from the old to the new business model, depends on the firm's capability to change.

This capability is mostly driven by the following activities: (i) commitment of senior management, (ii) involvement of middle management, (iii) involvement of employees, (iv) change process implementation, and (v) introduction of new technology (see Figure 2.3). The firm management's task is therefore to ensure that these considerations are factored in in decision-making launching the business model change process.

Figure 2.3. Drivers of business model change



A more detailed discussion of the literature explaining each of the driving forces and leading to concrete propositions follows below.

Capability to change. The firm's business model tends to become rigid once established (Doz and Kosonen, 2010), especially if it proved

successful in the past (Audia, Locke, and Smith, 2000; Chesbrough, 2010). Developing a capability to change stiff structures and processes therefore becomes paramount for the firm to adapt to the ever-changing environment. Leadership unity regarding the direction of change (Doz and Kosonen, 2010) and organizational flexibility in terms of its ability to reconfigure resources, workforce and processes (Bockmühl *et al.*, 2011; Doz and Kosonen, 2010; Li *et al.*, 2011) can be a key to enact fast and intensive response. Further, the leaders' charisma and their attitude toward change have been empirically established to drive the firm's capability to change (Zhou, Tse, and Li, 2006). Capability to change the organization is largely to be found in the ability of people to alter their behavior. Action learning scholars suggest that the barriers to change can be overcome by up-building positive affect, leveraging opposing forces within the political setup of the organization, and bringing external legitimacy of the change into the organization to support the reasoning (Seo, 2003). A well-known way to instill the need for change is by creating a sense of urgency (Jick, 1995; Kotter, 1995), for example by emphasizing low organizational performance (Donaldson, 2000) or the lack of "fit" between the external environment and internal activities (Dainty and Kakabadse, 1990; Greiner, 1967).

We here propose that the firm's capability to change serves as a prerequisite for business model change where prior routines that the people in the organization became accustomed to, are to be altered:

> **Proposition 6**: The firm's (lack of) capability to change positively (negatively) influences business model change.

Commitment of senior management. Major changes are impossible when upper echelon management does not favor them (Zhou *et al.*, 2006). Top management provides the strategic goal and shapes the culture for frontline and middle managers to pursue change (Strebel, 1995). Leaders' signaling of the importance of the vision and their support of the change implementation have been established to drive every step of the change

process (Whelan-Berry and Somerville, 2010). It has further been argued that a successful corporate renewal is driven by a special type of leader, the entrepreneur-manager, who is both willing to experiment and explore outside the organization and is effective in operational management to scale up an idea (Chakravarthy and Lorange, 2008). However, this is not to say that success depends on the individual heroic leader; rather, it is a team effort requiring leadership unity (Doz and Kosonen, 2010; Kotter, 1995).

If the CEO has been with the firm for a long time, there may be some delay and resistance to reorientation (Chesbrough, 2010), therefore the appointment of an externally recruited CEO may be the best option available to the board willing to turn the company around and improve its deteriorating performance (Brege and Brandes, 1993; Chan, 1993). A change effort may be undermined not because of its questionable prospects, but due to the antagonism toward the project sponsor, who, for instance, may have a background in a particular part of the organization, or may be too committed to making change happen due to their career prospects (Molinsky, 1999). In the worst case, management can even obstruct change, rationally or irrationally (Clemons and Hann, 1999), or erratically firefight the challenges that arise instead of following a coherent direction (Hoag, Ritschard, and Cooper, 2002). Additionally, leader-centric behaviors that impose change on people, rather than facilitating and engaging others, have a negative impact on change implementation (Higgs and Rowland, 2011).

Hence, we posit that business model change is driven by the commitment of the firm's senior management:

> **Proposition 7**: The (lack of) commitment of the firm's senior management positively (negatively) influences business model change.

Involvement of middle management. It has been found that firms that succeed in speedy change implementation have a trained team of line managers who can facilitate change on many levels (Atkinson, 1995). To implement change, it is essential to win the support of supervisors and

through them the staff (McCabe, 2010). Together with frontline employees, middle managers select concrete options to pursue, while with top management they decide which strategic directions to fully commit the firm to (Strebel, 1995). To motivate managers throughout the company to lead change, top management should explain why and what type of change is necessary (Rojas, 2003). Further, they should require that unit managers not only lead change but also learn about inconsistencies in the process and eradicate those immediately (Beer, 2001). Failure to recognize the important role of middle managers and to empower them, rather than only expect them to sell the new idea to employees, can effectively prevent change from happening (Raelin and Cataldo, 2011).

We therefore propose that involving middle management is positively associated with successful replacement of the business model:

> **Proposition 8**: The (lack of) involvement of the firm's middle management positively (negatively) influences business model change.

Involvement of employees. Involvement of all members of an organization is the key to successful management of change (Barnes, 1985). Few designing for the many lead to failure of change initiatives, and repeated efforts to convert the initially uninvolved only widen the gap between the two camps (Axelrod *et al.*, 2006). The facilitating and engaging behaviors of leaders are known to positively relate to change success (Higgs and Rowland, 2011), just like their sensitivity to the reactions of employees (Tampoe, 1990). However, while it is important to present an appealing future vision, the divergence of such rhetoric from the not-so-rosy reality, when, for instance, previous unsuccessful change attempts are communicated as successes, only cements the present state and blocks change (Molinsky, 1999).

Acceleration of the change effort depends on employees' understanding of and commitment to change (Jick, 1995). When speed in change implementation is paramount, and a directive top-down approach is seemingly the only choice, significant benefits can be attained even from

minor employee empowerment through training, which improves not only the attitude toward change but also toward the organization as such (Kappelman, Prybutok, and von Dran, 1996).

Participation can take the form of pilots or implementation discussions, whereas training can help operationalize the initiative (Whelan-Berry, Gordon, and Hinings, 2003). Employees though are likely to perceive the consequences of transition negatively and not apprehend improvement to their personal work or to overall organizational effectiveness (Marks, 2007). Involvement of employees in tasks specifically related to the change initiative enables individual adoption of change by deepening the understanding of the vision and providing first-hand experience of what change means for their specific jobs (Whelan-Berry and Somerville, 2010). Social psychologists have determined that a three-step approach – giving a rationale for doing a task, offering some choice about how to do the task, and acknowledging feelings about the task – facilitates the acceptance of organizational change, similar to how any other task is accepted (Gagné, Koestner, and Zuckerman, 2000).

People's natural resistance to change can be reduced when change is brought about with them, not done to them; therefore, requesting input in the form of questionnaires, workshops and focus groups, personalizing the benefits of change, and supporting employees through the difficulties associated with learning new behaviors can be helpful (Lewis, Romanaggi, and Chapple, 2010). The establishment of a corporate university (Prince and Beaver, 2001) can serve as a rather extreme example of dedication to helping employees acquire new skills and behaviors in order to facilitate change.

However, it is important to recognize that sometimes more fundamental issues inhibit the adoption of new configurations, for example the cultural background of employees (Danişman, 2010), value systems (Burnes and Jackson, 2011), the culture of the organization (Hernández-Mogollon *et al.*, 2010), and general misoneism or even issues in personal life (Self and Schraeder, 2009).

The role of employees in the change process is obviously not something to leave unattended, therefore:

> **Proposition 9**: The (lack of) involvement of employees positively (negatively) influences business model change.

Change implementation process. In unsuccessful firms, the change process never moves beyond mere fine-tuning and repair (Miles, Coleman Jr, and Creed, 1995). If a more radical reformation of business activities is attempted, however, interdependencies among the enablers, such as information technology, people and organizational structures, must be taken into account, and furthermore a well-orchestrated change process must be followed (Kotter, 1995; Love and Gunasekaran, 1997).

The steps of such a process as suggested by the literature typically include many of the following: (1) stating and communicating the rationale for change to the organization and beyond (Beer, 2001; Chan, 1993; Dainty and Kakabadse, 1990; Greiner, 1967; Isern and Pung, 2007; Klein, 1994; Kotter, 1995; Love and Gunasekaran, 1997; Rojas, 2003; Self and Schraeder, 2009); (2) bringing in an outsider such as a consultant or a new CEO to lead the change (Chan, 1993; Greiner, 1967); (3) establishing objectives (Bennett, Forrester, and Hassard, 1992; Dainty and Kakabadse, 1990; Isern and Pung, 2007; Kotter, 1995; Love and Gunasekaran, 1997; Whelan-Berry and Somerville, 2010); (4) identifying the activities to be changed (Chan, 1993; Dainty and Kakabadse, 1990; Greiner, 1967; Isern and Pung, 2007; Love and Gunasekaran, 1997; Rojas, 2003); (5) understanding and measuring the performance of current activities (Love and Gunasekaran, 1997); (6) identifying enablers (Love and Gunasekaran, 1997) and getting rid of obstacles to change (Kotter, 1995); (7) designing new activities (Greiner, 1967; Love and Gunasekaran, 1997); (8) testing the new activities (Greiner, 1967; Love and Gunasekaran, 1997); (9) implementing the changed activities (Dainty and Kakabadse, 1990; Love and Gunasekaran, 1997); (10) measuring progress (Bennett *et al.*, 1992; Dainty and Kakabadse, 1990; Whelan-Berry

and Somerville, 2010); (11) reinforcing the acceptance with short-term wins (Greiner, 1967; Kotter, 1995); (12) institutionalizing new approaches (Kotter, 1995; Whelan-Berry and Somerville, 2010).

Due time and efforts must be dedicated to ensure the success of a corporate transformation (Kim, 2007). Fast changes do not result in improvements (Beer, 2001) and may need up to five to ten years to sink into the culture of a large organization (Kotter, 1995). Many challenges associated with change can be tackled more easily if communication is thought about strategically and incorporated into all stages of the process – from the very rationale of change to progress reports, and to the effects of change (Barrett, 2002; Klein, 1994; Kotter, 1995; Nelson and Coxhead, 1997; Whelan-Berry *et al.*, 2003; Whelan-Berry and Somerville, 2010).

Since skipping any of the essential steps of the process is commonly associated with failure of change projects, we therefore conclude:

> **Proposition 10**: A well-orchestrated (poorly executed) change implementation process positively (negatively) influences business model change.

Introduction of new technology. The activities conducted within the business model are carried out either by people or by machines. Changing machine-based processes such as conveyor belt manufacturing or computer software-based office work seems easier than changing people's behaviors. Machines do what they are programmed to do, do not question the reasoning, and do not feel nostalgic about the old routines. New strategic IT systems can automate many business processes, such as order entry, sales, marketing, and inventory management, and can contribute significantly to a turnaround of the company (Klinger, Elam, and Sabherwal, 1994). Information systems can also enable a strategic change where the value proposition, the market segment served, and the revenue model (Clemons and Hann, 1999), or even the whole business model (Berman *et al.*, 2012), are significantly revised.

However, the introduction of information technology alone is rarely sufficient to alter business processes, because an end-to-end process is rarely conducted without the involvement of people (Love and Gunasekaran, 1997). Adoption of new technical solutions always has consequences for the social system – the roles, responsibilities and relationships in people's jobs (Beer, 2001) as well as power structures and political status quo (Ojiako and Maguire, 2008). Therefore, it is suggested that IT be implemented in combination with organizational changes, not separately, and done iteratively and incrementally in small steps (Markus, 2004).

We consequently propose that the introduction of a new technology can drive the change of the business model; however, we do not exclude the possibility that such an introduction can go wrong and block the change effort:

> **Proposition 11**: The introduction of a new technology positively (negatively) influences business model change.

This completes our discussion of drivers and barriers in the cycles of business model search and business model change, and we further proceed to a concluding discussion of the findings.

2.5. DISCUSSION AND CONCLUSION

The purpose of this paper was to conceptualize a process of business model innovation in established firms, as well as to identify key drivers enabling a successful outcome of this process. The method of choice was a survey of the classic and more recent literature in the fields of business model innovation, organizational change, strategic renewal, corporate entrepreneurship, business development, and turnaround.

Our synthesis of these somewhat disparate but complementary literature streams suggests that business model innovation/renewal indeed may be conceptualized as a two-cycle process: business model search and

business model change. The nature of these cycles is iterative, i.e. course corrections are likely to be made along the way. The renewal process is followed by a period of relatively stable business model execution. The entire business model life cycle is a loop if the firm realizes and pursues renewal instead of demise in the face of increasing environmental dynamism. When learned, internalized and mastered, such renewal competence becomes a dynamic capability of the firm (Teece *et al.*, 1997).

Before embarking on the journey of business model innovation, the firm therefore should recognize the possible barriers, which are very likely to inhibit the process, and embrace the drivers that may lead to a successful outcome. We draw on the insights from the (corporate) entrepreneurship literature and determine that some of the most important drivers that assist in the formation of the entrepreneurial capability and facilitate business model search are (i) understanding the environment, (ii) presence of entrepreneurial people, (iii) commitment of senior management to new initiatives, and (iv) dedicating resources and funding to new initiatives. From the literature on organizational change, we further find that the most important drivers of business model change are (i) commitment of senior management to change, (ii) involvement of middle management, (iii) involvement of employees, (iv) change process implementation, and (v) introduction of new technology.

Other authors have investigated the process of business model innovation and change in activity systems and came to equally interesting conclusions. Below, we compare them to our developed view.

Cavalcante *et al.* (2011) conceptualized the stages in the life cycle of the business model as "creation", "extension", "revision" and "termination". Our conceptualization is different in that we specify a search stage, which is comparable to the "pre-stage" in other work of these authors (Cavalcante, 2012). We, however, do not differentiate between changes such as "extension", "revision" and "termination", which refer to different degrees of change. In our framework, we further make a "no change" stage explicit

(as business model execution), which is not addressed in these authors' conceptualization.

Similarly, there is some likeness between our process and that of Morris *et al.* (2005). They envisioned a business model life cycle with the periods of specification, refinement, adaptation, revision, and reformulation of the business model. Specification and refinement, where an informal and implicit business model is defined and further refined through trial and error, are those of business model search. Further, adaptation and revision are types of incremental business model change, whereas reformulation is a more sweeping change, when major discontinuities in the environment occur and the initial business model cannot subsist with minor fine-tuning. Again, our view of business model innovation/renewal does not explicitly differentiate between the different degrees of change but does not exclude them either.

A contribution by Siggelkow (2002) proposes that the configuration of the firm's activities evolves toward an internal and external fit by following such paths as "thin-to-thick", "patch-by-patch", and more well-known trajectories through punctuated equilibrium and by linear progression. The first path (thin-to-thick) refers to the addition of complementary activities to reinforce the core. Our proposed process is a higher-level conceptualization. As a consequence, it does not specify which activities are replaced during business model change. The same can be said about the second path (patch-by-patch) where new core elements are created and reinforced by new elaborating elements.

The punctuated equilibrium path (e.g. Gersick, 1991) suggests that a period of relatively small incremental improvements is followed by a revolutionary change in many elements of the organization. In this light, our process of business model innovation allows the possibility of both types of change. Firstly, the period of relative stability during business model execution may include small optimizations in activities, whereas business model search may generate a radically new approach to conducting business,

which is then implemented during business model change. Secondly, the full cycle of search and change may at one time produce an incremental change, but a radical change at another.

Finally, the linear progression path (Greenwood and Hinings, 1988) suggests that several different core sets of activities exist simultaneously within the business model until they slowly and independently digress from each other and break the consistency, only to further down the road reach a new coherent state between the renewed core elements. Our business model renewal process in contrast focuses on only one business model, i.e. one activity set at a time. When a firm operates several activity sets, or several business models, each of them may have a separate renewal cycle if these business models are sufficiently isolated from each other. If, however, they are highly interdependent, it is fair to say that one business model renewal will influence the other, most probably in an iterative manner. At a higher level of the overarching parent business model, which runs the subordinate business models, the linear progression path described above may take place within the iterations of that higher level (second-order) business model renewal cycle.

Further, Bucherer *et al.* (2012) drew parallels between product innovation management and business model innovation and suggested that the firm may go through the stages of "analysis", "design", "implementation" and "control" on its way to a new business model. In their view, the long "analysis" phase lasting up to several years is when the management observes the decline of the extant business model's relevance. In our business model renewal process, this stage is not explicit. It is assumed that the management becomes aware of the need for a new way to do business during the execution of the old business model, only then launching deliberate search activities. The "design" stage is very similar to the search cycle; it is when various solutions are developed and tested for feasibility. To a large extent the "implementation" stage, where the old business model is replaced, either quickly or gradually with parallel existence of two business models, is similar

to our business model change. Finally, the "control" stage is notably absent from our conceptualization. We do not make this continuous success and failure monitoring activity explicit, but it is certainly important and should not be neglected when firms engage in business model innovation. However, by designing a process for tracking performance and business model change, the controlling aspect is explored in more detail in Chapter 5.

More recently, Zott and Amit (2015) went even further and linked design literature with business model innovation. They borrowed insights from the design thinking approach most often applied to product innovation and derived a normative model that can be used by business model designers. Their process consists of the following stages: "observe", "synthesize", "generate", "refine", and "implement". The observation phase includes understanding all stakeholders involved in the business model, i.e. end users, suppliers, partners, and the focal firm itself. In the synthesis phase, the designers take stock of the learnings and develop a holistic understanding of the challenges that the firm faces. During the generation phase, possible new business models, which would overcome the identified challenges, are developed. In the course of the refining phase, the alternatives are tested and evaluated. Finally, the implementation phase is the installation of the newly developed business model. The authors emphasize that designers may have to cycle through the process multiple times in an iterative manner. The cyclical nature of this process model certainly underscores our view of business model renewal. We see both the stages of business model search and business model change as cycles, and furthermore the entire innovation process coupled with the execution stage as a higher order business model life cycle. Also, the five stages seem like a useful and more practical elaboration of our two-stage process and may be helpful as guidance for practitioners.

While some authors have attempted to conceptualize a process of business model innovation in terms of the steps the firm may need to take to succeed, we tried to refrain ourselves from suggesting a step-by-step guide.

Instead, we opted to develop a list of drivers and barriers that can facilitate or inhibit the cycles of business model search and business model change.

In our view, it is essential to understand the forces that challenge or facilitate the process, and only then develop detailed plans about how to tackle these forces. The literature on the process of business model innovation is very new (Zott and Amit, 2015), therefore our broad literature survey here makes a valuable contribution both to the development of the field and to the practice of business model innovation, change and renewal.

2.6. IMPLICATIONS

The findings of this review bear the following implications for future research and practice. Since this paper has exclusively aimed at reviewing and synthesizing existing and to some extent scattered and unrelated literature, we propose the following future research agenda.

First, we invite investigations into the detailed manifestations of the drivers and barriers that we could identify in adjacent literature streams. Second, it is possible that we have not covered some of the factors given that the business models literature is an emerging field and the review here borrows from other literature streams. Third, a significant area to address in future research is the ways to minimize the influence of destructive forces (barriers) to successful business model renewal.

We welcome qualitative and quantitative empirical studies as much as interventionist approaches such as action research with organizations experiencing environmental dynamism. A note of warning, however: business model renewal is an ongoing process that may take years to observe and accordingly it requires a longitudinal design with actually no guarantee of useful findings. Therefore, retrospective approaches based on archival research of public information may prove one of the most feasible ways to study the phenomenon.

Industry surveys show that top management in a broad range of industries are actively seeking guidance on how to innovate their business models (IBM, 2006, 2008). Our research has followed up on this and the proposed framework has relevance for practicing business managers in several respects.

First, few if any managers can be expected to have an overview of the complexity and strategic issues involved in business model innovation. The framework offers such an overview. Second, by identifying key barriers and drivers influencing the strategic renewal process, upper echelon managers can a priori consider where to be prepared for special attention. Last but not least, the proposed framework helps direct the managers' focus on what is most important, when it has been recognized and decided that it is time to renew the business model.

3. TRACKING BUSINESS MODEL CHANGE[3]

Business model innovation is important for firm performance, yet studying the phenomenon is not straightforward. Existing research does not provide practical guidance as to how changes in the business model can be identified and tracked over time. The purpose of this paper is to introduce a technique for systematic processing of business model-related textual information from the firm's published reports, allowing the development of close familiarity with the vast amount of data. The technique focuses on data collection, classification and display to enable and facilitate further analysis. It builds on the activity-based view of the business model, the value chain concept and the typology of business model change to structure collected secondary data. The paper offers a useful tool for integrative theory building in the emerging business model innovation field, as well as for the practice of strategic analysis of competition and industry role models. We show how our proposed technique can be used in a multidimensional, multilevel, longitudinal and retrospective study of business model change in the context of a public firm.

[3] This chapter is co-authored by Sergejs Groskovs and John P. Ulhøi. It is based on an earlier paper draft accepted and presented at the Strategic Management Society Annual Conference 2014 in Madrid as "A Technique for Tracking Business Model Renewal" by Groskovs S and Ulhøi JP.

3.1. INTRODUCTION

Business model innovation represents an effective vehicle for organizational transformation and renewal (Demil and Lecocq, 2010), facilitates technology commercialization (Chesbrough, 2010; Gambardella and McGahan, 2010), and improves firm performance (Teece, 2010; Zott and Amit, 2008). Yet studying the phenomenon of business model change is not straightforward. Collecting, classifying and analyzing publicly available and scattered pieces of information remains a major challenge. The yet to be achieved convergence in conceptual business model framework development adds to the complexity (Schneider and Spieth, 2013; Spieth, Schneckenberg, and Ricart, 2014).

Regrettably not much progress has been made in the development of applicable methods ever since the first calls were voiced (Pateli and Giaglis, 2004). This unfortunate situation tends to block further development of the field and presents a gap in the literature. The analytical leaps in case studies in general are usually shrouded in mystery, depend on the individual researcher, and are normally not disclosed in publications (Eisenhardt, 1989b; Fiss, 2009; Miles and Huberman, 1984).

The purpose of this paper is to introduce a technique for systematic processing of business model-related textual information from the firm's published reports and news releases. The proposed technique enables the study of business model change longitudinally and retrospectively. The data collected and analyzed in this manner can be used, for instance, to develop typologies of change patterns and link them to the performance of the firm, to compare strategic development trajectories across firms, and/or to support practical corporate investment decisions.

We define business model as a set of activities (core business processes) that the focal firm and its collaborators repeatedly conduct to transform inputs (raw materials, components, ideas and other resources) into

an output (a value proposition for a specific customer segment). The understanding of the business model as an interdependent activity system (Zott and Amit, 2010) is rooted in the activity-based view of the firm and the value chain concept (Porter, 1985), the resource-based view of the firm (Wernerfelt, 1984), transaction cost economics (Williamson, 1979) and strategic networks (Gulati, Nohria, and Zaheer, 2000). The value chain is a particularly helpful concept to break down and structure the overall activity system. The value chain refers to all sequentially linked activities ranging from procurement of raw materials and knowledge to production, marketing, and sales and servicing (Porter, 1985). In the business models literature these activities are usually described as those of value creation, value delivery and value capture (Chesbrough and Rosenbloom, 2002; Gambardella and McGahan, 2010; Osterwalder *et al.*, 2005; Teece, 2010; Zott and Amit, 2010). Accordingly, business model change is introduced as an overarching concept to engulf the process of change from one business model to another. Throughout the paper, it is used interchangeably with business model innovation and evolution.

Our contribution to the development of the business models literature is threefold. First, based on a systematic literature review we analyze existing methods for studying and measuring business model changes. Second, due to the revealed lack of a described method to transition from data collection to analysis, we propose and elaborate on a technique for systematic qualitative processing of the information on changes in the business model. Third, we advocate for the use of secondary data such as corporate reports and news releases as a sufficient data source for use with this technique.

The paper is structured as follows. In the next section, we review existing methods in business model innovation research. Then we describe a new technique for tracking business model change based on qualitative content analysis of reports. We illustrate this technique with an example of a real case firm. Before concluding, we discuss pros and cons, future research, and implications for research and practice.

3.2. REVIEW OF METHODS IN BUSINESS MODEL CHANGE RESEARCH

To understand the state of the art in the methods applied in business model change studies, we conducted a systematic search for journal articles featuring the keywords "business model" in combination with "innovation", "change", "dynamics", "renewal", or "evolution" in the title of the paper. We used Thompson Reuters ISI Web of Knowledge database. The search covered all journal publications included in the SCI-EXPANDED, SSCI, A&HCI, CPCI-S, and CPCI-SSH indexes as of January 2014.

The exact query we used was:

TITLE: ("business model*" AND (innovation* OR change* OR dynamics OR renewal OR evolution)) AND LANGUAGE: (English) AND DOCUMENT TYPES: (Article).

The query returned 88 records, of which 43 papers addressed the process of change from one business model to another in the context of for-profit established firms. Of these 43 papers, 30 are empirical (i.e. building or testing theory with the collected primary or secondary data, see Table 3.1), whereas the rest are conceptual, methodological or literature reviews. We did not find a single dedicated methodological paper focusing on business model change detection. An analysis of the methods used in the 30 empirical papers follows below.

3.2.1. QUALITATIVE STUDIES

The dominant method employed to study business model innovation so far has been case studies. 22 empirical studies (73%) feature this approach exclusively. This suggests a rather premature or early stage of theory development in the field as researchers tend to mainly focus on identifying and analyzing various interesting aspects and/or dimensions of business model innovation.

The advantages of using case studies pointed out by the authors include possibility of answering how and why questions (Bucherer *et al.*, 2012; Calia, Guerrini, and Moura, 2007); generation of in-depth knowledge (Witell and Löfgren, 2013); transparent observation of data (Doganova and Eyquem-Renault, 2009); holistic investigation of complex processes (Holm, Günzel, and Ulhøi, 2013; Ramanathan, 2009); investigation of a recent phenomenon (Bucherer *et al.*, 2012) or new area (Desyllas and Sako, 2013) that is not well understood (Simmons, Palmer, and Truong, 2013); exploration of common or divergent patterns across cases (Habtay, 2012); exploration of implicit assumptions and relationships (Sánchez and Ricart, 2010); understanding of complex phenomena in a real-life context (Ferreira *et al.*, 2013; Holm *et al.*, 2013; Sánchez and Ricart, 2010); study of a multi-faceted phenomenon (Rajala, Westerlund, and Möller, 2012); illustration of constructs and use of both qualitative and quantitative data (Demil and Lecocq, 2010); use of multiple sources of data (Ferreira *et al.*, 2013); and use of comparable, longitudinal data over longer periods (Achtenhagen, Melin, and Naldi, 2013; Demil and Lecocq, 2010). Additionally, multiple case studies are perceived as stronger (Witell and Löfgren, 2013) and more robust (Ramanathan, 2009) for theory building than single case studies.

However, the case study methodology is not a silver bullet and must be employed with caution. The strongest limitation is the obvious lack of generalizability of the findings from such studies. Therefore, 10 out of 23 case study papers (45%) directly disclose this well-known constraint. Some of the other recognized limitations of case studies based on interviews and archival sources include difficulty to get access to informants due to geographic distance (Mason and Leek, 2008); single informant bias limiting verification (Bucherer *et al.*, 2012); the bias of firms' published data towards success (Demil and Lecocq, 2010); ex post rationalization of past events (Demil and Lecocq, 2010); lack of a widely recognized operationalization of the business model construct (Habtay, 2012); and lack of a tested analytical framework to study a new phenomenon such as business model innovation

(Holm *et al.*, 2013). Sometimes case researchers also complain about too much focus on a single factor (Witell and Löfgren, 2013) or effect (Wu, Guo, and Shi, 2013) and overlooking other variables, which is quite ironic given that the case study method is supposed to allow researchers to conduct a holistic investigation of a phenomenon.

3.2.2. QUANTITATIVE STUDIES

As for quantitative studies employing more or less sophisticated statistical analysis techniques, in the field of business model innovation we have come across only six papers (20%) using such methods. Perhaps due to a deeply entrenched belief about the superiority of quantitative studies, these papers generally do not mention the perceived advantages of quantitative studies (as opposed to qualitative studies) and tend to compare or discuss the assumed advantages of their employed statistical analysis or data collection techniques against alternative quantitative techniques (e.g. Guo, Zhao, and Tang, 2013; Pauwels and Weiss, 2008).

The most obvious acknowledged limitation of such approaches relate to the omnipresent problem of statistical generalizability (Bock *et al.*, 2012; Bourreau, Gensollen, and Moreau, 2012; Guo *et al.*, 2013; Huang *et al.*, 2013; Nair *et al.*, 2013; Pauwels and Weiss, 2008). However, some of the quantitative studies also recognize that they do not investigate causality (Bock *et al.*, 2012; Guo *et al.*, 2013), overlook potential inductive findings due to exclusive focus on measuring constructs derived from available theory (Bourreau *et al.*, 2012), and they include only a limited number of factors (Huang *et al.*, 2013) – which are all inherent and inescapable drawbacks of quantitative studies.

3.2.3. MIXED METHODS STUDIES

Research combining qualitative and quantitative approaches is very rare in this field. We have identified only two such studies (see Amit and Zott, 2012;

Willemstein, van der Valk, and Meeus, 2007). The disclosed limitations are the usual suspects: statistical generalizability and difficulty of gaining access to firms for in-depth investigations due to lack of good contact with management (Willemstein *et al.*, 2007).

3.2.4. DATA SOURCES

The variety of data sources used by our sample of case studies is quite impressive.

Primary sources include interviews (Achtenhagen *et al.*, 2013; Bucherer *et al.*, 2012; Calia *et al.*, 2007; Chesbrough and Rosenbloom, 2002; Desyllas and Sako, 2013; Doganova and Eyquem-Renault, 2009; Ferreira *et al.*, 2013; Guo *et al.*, 2013; Habtay, 2012; Holm *et al.*, 2013; Mason and Leek, 2008; Rajala *et al.*, 2012; Ramanathan, 2009; Simmons *et al.*, 2013; Sosna *et al.*, 2010; Willemstein *et al.*, 2007; Witell and Löfgren, 2013; Wu *et al.*, 2013), observations (Ramanathan, 2009), field notes (Mason and Leek, 2008), seminars (Sánchez and Ricart, 2010), focus groups (Habtay, 2012), and workshops (Witell and Löfgren, 2013).

Secondary sources are typically annual and quarterly reports (Achtenhagen *et al.*, 2013; Bucherer *et al.*, 2012; Demil and Lecocq, 2010; Desyllas and Sako, 2013; Holm *et al.*, 2013; Mason and Leek, 2008; Sánchez and Ricart, 2010; Wu *et al.*, 2013), initial public offering prospectuses (Amit and Zott, 2012), sustainability reports (Sánchez and Ricart, 2010), company presentations and plans (Doganova and Eyquem-Renault, 2009; Wu *et al.*, 2013), procedures and contracts (Mason and Leek, 2008), market reports (Sánchez and Ricart, 2010), technical publications (Ferreira *et al.*, 2013), news in media (Desyllas and Sako, 2013; Jetter, Satzger, and Neus, 2008; Wu *et al.*, 2013), industry publications (Holm *et al.*, 2013; Rajala *et al.*, 2012; Wu *et al.*, 2013), newsletters (Holm *et al.*, 2013), websites (Achtenhagen *et al.*, 2013; Calia *et al.*, 2007; Doganova and Eyquem-Renault, 2009; Nair *et al.*, 2013; Sánchez and Ricart, 2010), blogs (Koen, Bertels, and Elsum, 2011; Rajala *et*

al., 2012), patent databases (Desyllas and Sako, 2013), research papers (Bucherer *et al.*, 2012; Chesbrough and Rosenbloom, 2002; Choi and Perez, 2007; Holm *et al.*, 2013; Jetter *et al.*, 2008; Koen *et al.*, 2011), and published case studies (Koen *et al.*, 2011; Sánchez and Ricart, 2010). Secondary sources are evidently used very extensively; although they are mainly brought in to support or triangulate the insights extracted from primary sources.

However, there is no reason for not using secondary data or for not acknowledging their importance and usefulness. On the contrary, it is an acceptable tradition in social research (Scott, 2006), which should be embraced and applied when justified. For a researcher new to a company, the data contained in its documents are often more comprehensive than one could obtain from interviews or questionnaires, and their collection process is unobtrusive and nonreactive (Forster, 2006).

3.2.5. MEASURES OF BUSINESS MODEL CHANGE

Detecting a change in the business model is no straightforward task, especially given that discussions about the very definition of the business model construct are still in the air. Each study implicitly or explicitly indeed applies a different criterion to define when the business model has changed. The general approach is to break down the construct into its constituting elements and observe changes in each of them (see Table 3.1 for a detailed account of elements used in each study).

Such elements are usually one or two hierarchical levels below the level of the business model. Typically, the first-level elements include (i) value proposition, (ii) value creation, (iii) value delivery, and (iv) value capture.

The second level, which is closer to what we can observe in real life, may include such diverse sub-elements as concrete offerings (Achtenhagen *et al.*, 2013; Bucherer *et al.*, 2012; Ferreira *et al.*, 2013; Guo *et al.*, 2013; Holm *et al.*, 2013; Jetter *et al.*, 2008; Willemstein *et al.*, 2007), market segments (Achtenhagen *et al.*, 2013; Calia *et al.*, 2007; Chesbrough and Rosenbloom,

2002; Desyllas and Sako, 2013; Doganova and Eyquem-Renault, 2009), value chain (Achtenhagen *et al.*, 2013; Chesbrough and Rosenbloom, 2002; Desyllas and Sako, 2013), value network and actors (Chesbrough and Rosenbloom, 2002; Desyllas and Sako, 2013; Ferreira *et al.*, 2013; Habtay, 2012; Holm *et al.*, 2013; Koen *et al.*, 2011; Mason and Leek, 2008; Rajala *et al.*, 2012), cost structure (Achtenhagen *et al.*, 2013; Chesbrough and Rosenbloom, 2002; Demil and Lecocq, 2010; Desyllas and Sako, 2013; Guo *et al.*, 2013; Holm *et al.*, 2013; Witell and Löfgren, 2013), revenue model (Achtenhagen *et al.*, 2013; Demil and Lecocq, 2010; Desyllas and Sako, 2013; Ferreira *et al.*, 2013; Guo *et al.*, 2013; Habtay, 2012; Holm *et al.*, 2013; Pauwels and Weiss, 2008; Rajala *et al.*, 2012; Witell and Löfgren, 2013), profit formula (Chesbrough and Rosenbloom, 2002; Demil and Lecocq, 2010; Guo *et al.*, 2013; Holm *et al.*, 2013; Huang *et al.*, 2013), competitive strategy (Chesbrough and Rosenbloom, 2002; Desyllas and Sako, 2013), source of advantage (Calia *et al.*, 2007), positioning (Calia *et al.*, 2007), organizational structure (Bock *et al.*, 2012; Demil and Lecocq, 2010), culture (Jetter *et al.*, 2008), processes (Bucherer *et al.*, 2012; Huang *et al.*, 2013), routines (Mason and Leek, 2008), channels (Holm *et al.*, 2013; Witell and Löfgren, 2013), countries where activities are conducted (Ramanathan, 2009), resources (Achtenhagen *et al.*, 2013; Demil and Lecocq, 2010; Guo *et al.*, 2013; Huang *et al.*, 2013; Rajala *et al.*, 2012; Witell and Löfgren, 2013), competences (Demil and Lecocq, 2010; Holm *et al.*, 2013; Nair *et al.*, 2013), capabilities (Ferreira *et al.*, 2013), technology (Doganova and Eyquem-Renault, 2009; Koen *et al.*, 2011), marketing activities (Simmons *et al.*, 2013), core logic (Nair *et al.*, 2013), belief systems (Nair *et al.*, 2013), cognitive environments (Nair *et al.*, 2013).

Regrettably, the decisions as to how many of the elements should change or how much they should change to justify a business model change usually remain undisclosed. Also, many constituting elements of the business model are left undefined, too abstract and essentially unmeasurable.

By conducting the above literature review, we came to realize that despite many useful empirical contributions, not a single concrete technique

for detecting business model changes, which would explicate how to identify changes in the business model that may occur on multiple levels, has been introduced in a dedicated methodological paper. Furthermore, the mystery surrounding the analytical leap from data collection to connecting the dots in theory building remains unresolved. The approaches introduced in empirical papers are not sufficiently explicit (especially in qualitative papers) leaving researchers with poor grounds for replication or for follow-up studies. This unfortunate state of affairs leaves a vacuum in the literature and tends to block further development of the field. This paper fills some of this gap by proposing a concrete technique and exemplifying the use of it with an illustrative case of a company listed on a public stock exchange.

Table 3.1. Methods, data sources and measures of change in empirical business model innovation studies

PAPER	METHOD	ADVANTAGES	LIMITATIONS	DATA SOURCES	MEASURES OF BUSINESS MODEL CHANGE
QUALITATIVE STUDIES					
(Chesbrough and Rosenbloom, 2002)	Case study	-	-	Research papers; interviews	Change of any of the business model attributes: value proposition, market segment, value chain, cost and profit, value network, competitive strategy. The more elements are changed, the more substantial the change of the business model.
(Calia *et al.*, 2007)	Case study	Answers how and why questions	-	Journals, newspaper, government agency website, entrepreneurs club website; interview	Change of any of the business model components: value creation mechanism, market, internal source of advantage, positioning in the marketplace, money making mechanism, and entrepreneur's time, scope and size ambitions
(Choi and Perez, 2007)	Case study	-	-	News in media, research papers	-
(Jetter *et al.*, 2008)	Case study	-	-	News in media, research papers	Change from one of the three business model types to another: product provider, integrator of IT solutions, provider of consulting services. Each type is rooted in a distinct offering, with implications for activities conducted by the firm, its organization and culture.
(Mason and Leek, 2008)	Case study, longitudinal	Generates in-depth knowledge	Lack of access to one of the firms due to geographic distance, single case	Interviews; contracts, meeting minutes, quarterly reports, procedure and review documents, field notes from firm visits, archival documents	Change of business model elements: structure (firm structure, business network structure and firm's position within it), inter-firm routines, problem solving activities. Observable via diagramming network structures with actors and communication flows.
(Doganova and Eyquem-Renault, 2009)	Case study, longitudinal	Makes data transparently observable	-	Interviews; corporate presentations, business plans, website, public interview	Change of market segment. Also, simultaneous extension of market segment, change of technological artifact to deliver the offering, and change of partners.

PAPER	METHOD	ADVANTAGES	LIMITATIONS	DATA SOURCES	MEASURES OF BUSINESS MODEL CHANGE
(Ramanathan, 2009)	Case studies, multiple	Holistically investigates a process, is more robust than single case study	Generalizability	Interviews, observations; documents	Change of the country where activities are conducted from high-cost to low-cost, when switching to an offshore outsourcing business model
(Demil and Lecocq, 2010)	Case study	Illustrates constructs, allows collecting comparable quantitative and qualitative data	Positive bias towards successes, ex post rationalization in company reports	Annual reports (primarily), press releases, third party reports, press articles (secondarily)	Change between or within core components of the business model: resources and competences, organizational structure, value propositions. Observable through substantial change in the structure of firm's costs and/or revenues, change in performance (profit margin).
(Doz and Kosonen, 2010)	Case studies, multiple	-	-	Summary of authors' earlier work	Change of the firm's boundaries, value creation mechanism, internal structure and governance
(Sánchez and Ricart, 2010)	Case studies, multiple	Allows exploring implicit assumptions and new relationships, allows developing theory, allows understanding complex phenomena in real-life context	-	Annual reports, sustainability reports, market reports, published business cases, slides, internal documents, websites, news, interviews, seminars	Change of business model elements: choices (policies, assets, governance), consequences, theories linking choices and consequences.

PAPER	METHOD	ADVANTAGES	LIMITATIONS	DATA SOURCES	MEASURES OF BUSINESS MODEL CHANGE
(Sosna *et al.*, 2010)	Case study, longitudinal	Revelatory case suited to the purpose of the study	-	Interviews; company data, industry news	Opening first own store and subsequently franchising store openings, when switching from a "product wholesaler" business model to a "product, service and education provider"
(Koen *et al.*, 2011)	Case studies, multiple	-	-	Industry news, business case, blog, research paper	Change along business model innovation dimensions: technology (incremental, architectural, radical), value network (existing, new to the firm with existing consumers who are not yet customers, new to the firm but with new non-consumers), financial hurdle rate (existing, lower than normal)
(Bucherer *et al.*, 2012)	Case studies, multiple	Suitable for investigating recent phenomenon when mature research is lacking, allows understanding how and why	Statistical generalizability, single informant bias, subjectivity in data analysis and categorization	Interviews; company publications, annual reports, web pages, research papers	Change of core elements of a firm and its business logic. Observable through changes in products, processes, and other elements (not specified).
(Habtay, 2012)	Case studies, multiple, longitudinal	Allows exploring common or divergent patterns across cases	Statistical generalizability, lack of reliable, valid and agreed upon operational construct of business model	Interviews; focus groups, company publications, industry news	Change of business model dimensions: value proposition, customer base, value network, strategy, revenue model

PAPER	METHOD	ADVANTAGES	LIMITATIONS	DATA SOURCES	MEASURES OF BUSINESS MODEL CHANGE
(Rajala *et al.*, 2012)	Case study, longitudinal	Reasonable to analyze multi-faceted phenomenon	Statistical generalizability	Interviews; company documents, blogs, industry articles	Change of business model elements: value proposition, resources, network relationships, revenue model
(Achtenhagen *et al.*, 2013)	Case studies, multiple, longitudinal	Suitable for studying complex, longitudinal phenomena	Statistical generalizability	Interviews; annual reports, websites, industry news	Change of any of the business model elements: products/services, markets/customers, value chain (value generation, value capture (revenue model)), key activities, key resources, cost structure)
(Desyllas and Sako, 2013)	Case study	Appropriate for new area of research	Statistical generalizability	Interviews; patents, trademarks, stock market reactions to events, annual reports, news in media	Change of business model elements: value proposition, market segment, value chain structure, position of the firm within value network, revenue mechanism, cost structure, competitive strategy
(Ferreira *et al.*, 2013)	Case study	Investigates complex phenomenon in real-life context, uses multiple sources of evidence	-	Interviews; company visits, articles, technical publications	Change of business model elements: network structure, offerings, revenue model, capability accessing
(Holm *et al.*, 2013)	Case study	Explores a complex phenomenon in real-life context, provides insight into complex processes	Statistical generalizability, reliance on one not extensively tested framework	Research papers, industry reports, industry association newsletters, industry conferences, annual reports, press releases, interviews	Change of any of the business model elements: value proposition (offering), value delivery (target customer, distribution channel, customer relationship), value creation (value configuration, core competency, partner network), value capture (cost structure, revenue model, profit allocation)

PAPER	METHOD	ADVANTAGES	LIMITATIONS	DATA SOURCES	MEASURES OF BUSINESS MODEL CHANGE
(Simmons *et al.*, 2013)	Case studies, multiple	Allows studying the phenomenon that is not well understood and interrelationships are unclear	Statistical generalizability	Interviews	Change of marketing activities types (environmental scanning, market-sensing, marketing planning, marketing channel selection, target marketing), change in value proposition readiness (early ideas, firming up, confirmation)
(Witell and Löfgren, 2013)	Case studies, multiple	Allows gaining in-depth knowledge on the phenomenon and its dynamics, developing stronger theory than a single case study	Statistical generalizability, retrospective rather than longitudinal study, analysis of a single factor	Interviews, workshops	Change of any of the business model building blocks: key partners, key activities, key resources, cost structure, value proposition, customer relationships, channels, revenue streams and customer segments
(Wu *et al.*, 2013)	Case study	Appropriate when the unit of analysis is a system of action rather than individual actions and when the viewpoint of multiple respondents is desired	Statistical generalizability, investigation of only positive effects	Public and confidential company documents, plans, presentations, industry reports, news in media; interviews	Change in the architecture of activities: value creation, value delivery, value capture
QUANTITATIVE STUDIES					

PAPER	METHOD	ADVANTAGES	LIMITATIONS	DATA SOURCES	MEASURES OF BUSINESS MODEL CHANGE
(Pauwels and Weiss, 2008)	Statistical analysis	Accounts for time series properties of variables and interactions	Statistical generalizability	Daily data on sales of subscription to a website	Change of revenue model, when switching from free to subscription business model
(Bock *et al.*, 2012)	Statistical analysis	-	Measures of the construct, statistical generalizability, lack of causality	Survey of 107 large global firms (secondary use of original data)	Focusing firm efforts on opportunity exploration and discontinuous rather than incremental product or process innovation. Observable when any of the following structural changes occur: delegation of business functions (use of third-party operating utility, onshore outsourcing, shared services, major project-based contracting), consolidation (offshore outsourcing, spin-offs, major strategic partnerships), reconfiguration (organizational structural changes).
(Bourreau *et al.*, 2012)	Statistical analysis	-	Statistical generalizability, overlooking inductive findings, projective rather than direct questions, disregarding time dimension	Survey of 151 music labels in France	Change along two dimensions: strategy of value capture (sales of content, sale of complimentary goods or services), strategy of value creation (ex ante selection of music talents, promotion of music ex post)
(Guo *et al.*, 2013)	Statistical analysis	Improves response rate	Single informant bias (common method variance), statistical generalizability, lack of causality	Survey of 146 firms in China, on-site interviews	Change of business model elements: value proposition (offerings, target customers), value-creation system (actors, resource structure, transactive structure, governance mechanisms), value-capturing mechanism (cost structure, revenue formula, profit model)

PAPER	METHOD	ADVANTAGES	LIMITATIONS	DATA SOURCES	MEASURES OF BUSINESS MODEL CHANGE
(Huang *et al.*, 2013)	Statistical analysis	-	Common method variance, statistical generalizability, limited number of factors included in the model	Survey of 141 manufacturing SMEs in Taiwan	Change of business model components: customer value proposition, profit formula, key resources, key processes
(Nair *et al.*, 2013)	Comparative analysis	-	Statistical generalizability	Survey, company documents, regulatory agencies, trade press, websites of 17 airlines in Europe, Asia, Oceania	Change of business model factors: core logic, belief systems, cognitive environments, competencies, and interaction between them
MIXED METHODS STUDIES					
(Willemstein *et al.*, 2007)	Mixed (statistical analysis & case studies, multiple)	-	Lack of access to most of the firms due to lack of contact, statistical generalizability	Survey of 75% of 106 biotech firms in the Netherlands, interviews with 4 of these firms	Change of offering: product, service, platform, or hybrid
(Amit and Zott, 2012)	Mixed (case studies, multiple & statistical analysis)	-	-	IPO prospectuses of 59 firms in Europe and US, statistical analysis of 190 listed firms	Change of content, structure or governance of activities

3.3. ENABLING THE ANALYSIS OF BUSINESS MODEL CHANGE

3.3.1. RETROSPECTIVE LONGITUDINAL DESIGN BASED ON SECONDARY DATA

Business model innovation is a process unfolding over time. Studying a process ideally requires a longitudinal design. Retrospective studies will inevitably be characterized by varying degrees of incomplete human memory and ex post rationalization biases. Given that changes to the business model are of an architectural nature, it can easily take years in an established organization before these changes and the trajectory of development are observable. While investing time and financial resources in a multi-year real-time longitudinal study can certainly be admirable, it may not always be very practical or feasible due to firm- or sponsor-related constraints.

Firms produce a multitude of business documents that they share with the public, most notably customers and investors. Documents addressed to customers allow researchers to identify states and changes of the customer-facing part of the business model (such as marketing, sales, distribution, pricing), whereas the documents shared with the investor community provide explanations of how the firm is organized to serve its customers and generate profit, including the underlying logic of doing business.

Publicly listed firms are of particular interest here, as issuers of shares are normally required to disclose information that is "price sensitive". The requirement to disclose such information creates an opportunity for researchers to access and use it to study business model changes. "Price sensitive" information refers to the "information which is reasonably expected to affect the price of the company's listed securities, in accordance with the applicable national legislation" (see e.g. NASDAQ OMX, 2013). Examples of the events that require disclosure and are of relevance to

business model change tracking include orders or investment decisions, co-operation agreements or other agreements, credit or customer losses, new joint ventures, research results, financial difficulties, market rumors, information regarding subsidiaries and affiliated companies, and significant deviation in financial result or financial position. This is not a comprehensive list of all possible situations. Rather, according to the rules, the firm must determine when an event of significance to the share price has occurred or is reasonably expected to occur, and must inform the public. One of the major components of the share price is the firm's profitability, which is directly influenced by the activities the firm chooses to perform. In the chosen activity-based view of the business model in this paper, the combination of all activities conducted by the firm comprises the firm's business model; hence, listed firms do indeed report on changes in their business models without necessarily addressing the concept directly.

Despite the availability of useful information in public reports, the business models literature does not yet seem to provide us with techniques to utilize this information. Therefore, we here propose such a technique. The technique is based on qualitative content analysis of the information disclosed by listed firms in annual and interim reports as well as news releases to the stock exchange. The proposed technique involves reading and coding of these texts in a systematic manner as well as changing the form of the data with tabulation and visualization approaches to develop intimate familiarity with the data, which in turn facilitates further analysis (Eisenhardt, 1989b).

To illustrate our technique, we picked a case of a Danish software development firm, Trifork A/S. The firm was established in 1996 as Eastfork Object Space. From late 2007 till early 2014 the firm was listed on the Copenhagen Stock Exchange (NASDAQ OMX). It has filed an IPO prospectus, 7 annual reports, 17 interim quarterly and half-year reports, and 146 miscellaneous news announcements. The firm's current offerings are software development, conferences, training and courses, and consulting to various private and public sector organizations. In the period 2007–2012, the

firm has demonstrated a high compound annual growth rate of 31 per cent in revenues and 26 per cent in EBITDA. In 2013 the firm relocated its head-quarters to Switzerland and the following year delisted its shares from the stock exchange.

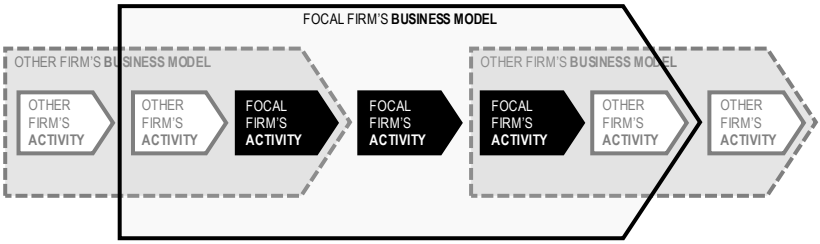
The amount of information generated by the firm (57 relevant documents comprising 818 pages) makes tracking changes in its business model a rather challenging task. Therefore, a systematic approach to collecting, classifying and displaying this information is needed to facilitate further analysis in search for patterns. We propose to follow a five-step procedure described below.

3.3.2. STEP 1: CHOOSE BUSINESS MODEL DEFINITION

The technique described here relies on the activity-based view of the business model and to a large extent adopts the definition proposed and consistently maintained by Amit and Zott (2001; 2007, 2013; 2011). However, the logic behind the technique allows the use of other definitions as long as the components of the business model can be clearly separated.

Our chosen understanding of the business model is rooted in the generic value chain concept where the focal firm has chosen to conduct certain activities leaving other activities to collaborators (see Figure 3.1).

Figure 3.1. Focal firm's business model in the complete value chain



3.3.3. STEP 2: COLLECT RELEVANT QUOTATIONS

Collecting relevant quotations from the texts included in the reports involves a highly systematic reading and is dependent on the business model definition chosen. Taking the activity-based view as in this paper, a sharp focus on the firm's activities is essential to ensure that the researcher is not carried away by the plethora of other interesting information in the reports. The questions to keep in mind while harvesting reports for quotations are "Is this what the firm does on a regular basis?" and "Did the firm change something in its repeated activities?" Additionally, attention should not only be focused on the focal firm but also on immediate collaborators with whom the firm transacts, since the definition employed emphasizes the boundary-spanning nature of the business model, namely, that the activities within the business model can be conducted by different firms.

In our example of Trifork A/S, such systematic reading produced 171 highly relevant quotations. It is still a long list that is difficult to process; therefore, to enable the analysis, certain classifications will be useful.

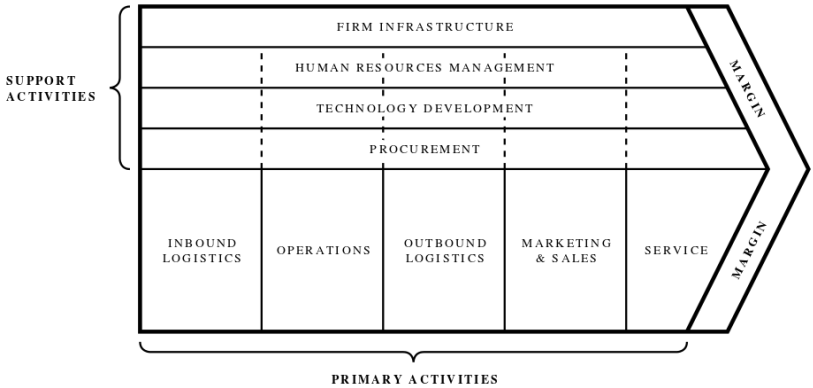
3.3.4. STEP 3: CLASSIFY COLLECTED QUOTATIONS

The adopted business model view as a set of activities allows us to use the classic value chain concept (Porter, 1985: 45–47) to break down the list of quotations into mutually exclusive and collectively exhaustive chunks of data by specifying where exactly the changes took place (see Figure 3.2).

Accordingly, we differentiate between primary activities (inbound logistics, operations, outbound logistics, marketing and sales, and service) and support activities (human resource management, technology development, procurement, and firm infrastructure maintenance) that each firm carries out within its business model to create, deliver and capture value. The bigger and the more complex an organization, the deeper the levels of sub-activities and sub-sub-activities to expect. For the purpose of tracking the business model,

we do not go further than the first level of sub-activities (e.g. customer acquisition under the marketing and sales activity). Each firm will have its own structure of sub-activities; hence the list of sub-activities should be generated inductively from the analysis of the concrete firm.

Figure 3.2. Generic value chain concept (Porter, 1985: 46)



Changes in activities can also be categorized as changes in content ("what is being performed"), governance ("who performs the activity") and structure ("in what sequence the activities are performed") (Amit and Zott, 2001; Zott and Amit, 2007, 2010, 2013), which can be observed and tracked with our proposed technique too.

Further, we borrow the types of change from the business model change typology (Cavalcante *et al.*, 2011) to classify the observed changes as creation, extension, revision and termination. Since firms often describe how they are doing business at present, we also introduce a "no change" type of change, or the state/execution of the business model. Further, in line with our business model definition and the fact that firms often report on changes at the activity level rather than at the overall business model, we track the aforementioned change types at the activity and sub-activity levels.

All states and changes are assigned one of the following types:

- **=** (no change, the activity is executed in this reporting period as before);
- **+** (creation, a new activity is added to the business model);
- **–** (termination, from now on the activity is not conducted in this business model);
- **=+** (extension, a subactivity is added to the existing parent activity);
- **=–** (revision by termination, a subactivity is terminated from the existing parent activity);
- **=+–** (revision by termination and creation, a subactivity is terminated and at the same time another subactivity is added to the existing parent activity).

To synthesize more complex types of change at higher levels of activity (**=+**, **=–**, **=+–**), we use combinations of the basic symbols depicting no change (**=**), addition (**+**) or removal (**–**) of an activity on a lower level.

The inquisitive reader may ask us for concrete examples as to how we interpreted textual information in the reports and converted it into changes in activities. We provide three such examples below.

Example 1. On 11 February 2008, the firm made the following announcement to the stock exchange:

> "The management of Trifork has decided to offer an employee stock ownership plan to the employees of the Trifork Group." (Trifork A/S, 2008a: 1)

In the 2008 annual report published on 18 March 2009, the firm reported on the outcome of the offering:

> "In 2008, the majority of Trifork's employees participated in the employee stock ownership plan, where each employee could invest up to 22,000 DKK of his/her gross salary in the period between February 2008 and February 2009. The shares were sold to the employees at a market price. Similar plan will be established for 2009." (Trifork A/S, 2009: 16)

Both quotes serve as evidence of the same change event, which occurred in the first quarter of 2008. The firm has essentially established a new activity of managing a profit-sharing program to motivate its employees. Before this, there was no mention of any specific activities targeting employee motivation and retention in the firm's announcements. We therefore classify the change type as "creation" (+) of the "employee retention" sub-activity under the "HR management" activity. All elements of the sub-activity were created in one go: a new activity has to be managed by someone, and it has to connect to other activities. Therefore, the "creation" type of change is attributed to all three elements – "content", "governance" and "structure" of the sub-activity in focus.

Later, when a similar employee stock ownership plan was repeated the following years, a "no change" type (=) was associated with announcements and the data was classified as a state (continued execution) of the sub-activity.

Example 2. On 28 August 2008, the firm published its 2008 half-year report and spoke of the following:

> "The first six months as a listed company for Trifork have been characterized by great activity and strong growth in revenue. The growth in revenue is partly due to general growth in most areas, and the extra revenue is from Interprise Consulting and Delta Software, which were acquired in the fall of 2007. The company has mobilized resources to integrate and renew its internal systems in the finance and project management area." (Trifork A/S, 2008b: 3)

This piece of information points at changes in two sub-activities: "administration" under "firm infrastructure" and "development of technologies", which is the only sub-activity under "technology development". The governance and structure of both sub-activities were revised (=+–) but the content remained unchanged (=). The firm continued administering its finances and managing its software development, conference, consulting and education projects, but the activities were changed structurally to accommodate new acquisitions. Since the change also involved integration of acquired firms, the governance of finance and project

management was changed to be hosted by Trifork. Therefore, we classified these events as revisions of structure and governance but not content. Finally, the revisions mentioned were reportedly taking place during the first half of the year; hence changes were registered in both the first and second quarters of 2008.

Example 3. Now let us look at the example where we are able to assign a certain change type to the whole business model. On 15 March 2010, in its 2009 annual report, the firm announced that it was regularly aligning activities throughout the year:

> "The overall market situation in 2009 was affected by the financial crisis and the impact it had on the Danish economy. In 2009, Trifork regularly aligned activities, and therefore, in spite of the economic crisis continued to show a positive development." (Trifork A/S, 2010: 9)

This is a short statement with broad implications. The firm is speaking about changes in activities, which means adjustments of many if not all of them, given the extent and the persistence of the effects that the 2008 financial crisis had on the global economy, industries and individual firms. Therefore, we interpreted this information as evidence for revision (=+–) of the structure of all subactivities in each quarter of the year. Similar announcements with some textual variations have been noted and classified accordingly from 2010 to 2012.

3.3.5. STEP 4: TABULATE CHANGES IN ACTIVITIES

To facilitate the analysis, we organize all states and changes in activities in a table at the levels they are observed. A sample account of all changes in activities in our case firm's business model for the years 2008 and 2009 is given in Table 3.2. We are also able to allocate states and changes to a certain date or period. Since quarterly reporting is generally accepted in business practice, we adopt quarters for our technique too.

For example, as Table 3.2 demonstrates, in the first quarter of 2009, the sub-activities of our case firm changed in terms of their content and structure. It was still the same firm conducting these sub-activities though; hence there are no registered changes in governance such as outsourcing, insourcing, partnerships or ownership change.

The firm extended (=+) the content of several subactivities and revised (=+–) the structure of all sub-activities. More specifically, the firm extended several subactivities in HR management (initiated stress coaching and employee appraisals), extended the technology development sub-activity (started developing a new programming language), and extended several sub-activities in operations (began software development, conference production and educational courses in a new mobile apps product area). We assigned an "extension" (=+) rather than "creation" (+) type to the aforementioned changes, because the activities were already being carried out by the firm in the previous period. Further, as the firm was reportedly adjusting all its activities throughout the year to combat the financial crisis, we assigned a revision type (=+–) to the structure of all subactivities.

Several sub-activities were not changed at all (=); we either saw the direct evidence of "no change" types of change in the firm's reports, i.e. the firm described its activities in the same way as before, or we inferred it logically from the lack of change announcements for this reporting period. The sub-activities without any type of change (empty cells in the table) indicate that as of the first quarter of 2009 the firm had not yet announced changes nor had it described states of these activities or sub-activities.

Table 3.2. Tabulated changes in the business model (based on the coded data from Trifork A/S 2009 reports)

	2009	Q1			Q2			Q3			Q4		
		GOV	CON	STR	GOV	CON	STR	GOV	CON	STR	GOV	CON	STR
Primary activities	**Inbound logistics**												
	Processing of inputs for conferences												
	Processing of inputs for consulting												
	Processing of inputs for education												
	Processing of inputs for software	=	=	=+-	=	=	=+-	=	=	=+-	=	=	=+-
	Operations												
	Conference production	=	=+	=+-	=	=	=+-	=	=	=+-	=	=	=+-
	Consulting project execution	=	=	=+-	=	=	=+-	=	=	=+-	=	=	=+-
	Education course production	=	=+	=+-	=	=	=+-	=	=	=+-	=	=	=+-
	Software development	=	=+	=+-	=	=	=+-	=	=	=+-	=	=	=+-
	Outbound logistics												
	Conference delivery	=	=	=+-	=	=	=+-	=	=	=+-	=	=	=+-
	Consulting project delivery	=	=	=+-	=	=	=+-	=	=	=+-	=	=	=+-
	Education course delivery	=	=	=+-	=	=	=+-	=	=	=+-	=	=	=+-
	Software implementation	=	=	=+-	=	=+	=+-	=	=	=+-	=	=	=+-
	Marketing & sales												
	Customer acquisition	=	=	=+-	=	=	=+-	=	=	=+-	=	=	=+-
	Customer retention												
	Selling product to customers	=	=	=+-	=	=	=+-	=	=	=+-	=	=	=+-
	Service												
	Conference post-delivery support												
	Consulting post-delivery support												
	Education post-delivery support												
	Software post-implementation support	=	=	=+-	=	=	=+-	=	=	=+-	=	=	=+-
Support activities	**Infrastructure management**												
	Administration	=	=	=+-	=	=	=+-	=	=	=+-	=	=	=+-
	General management	=	=	=+-	=	=	=+-	=	=	=+-	=	=	=+-
	HR Management												
	Employee recruiting												
	Employee retention	=	=+	=+-	=	=	=+-	=	=	=+-	=	=	=+-
	Employee development	=	=+	=+-	=	=	=+-	=	=	=+-	=	=	=+-
	Technology Development												
	Development of technologies	=	=+	=+-	=	=	=+-	=	=	=+-	=	=	=+-
	Procurement												
	Procurement of inputs												

3.3.6. STEP 5: TRANSFORM AND VISUALIZE DATA

Once the changes at the sub-activity level are collected, and their types determined and displayed over a longer period of time, we are ready to begin transforming the data to enable further analysis of the trajectory which the development of the focal firm's business model has taken over time.

To continue with the example of our case firm, its business model in 2006–2012 was subjected to all types of changes in almost all its sub-activities. The focus of the analysis should now be on identifying interesting coincidences in the tabulated data (zooming out) and going back to the actual quotations (zooming in) to investigate the substance (what), reasons (why) and nature (how) of the changes.

Identification of both temporal and structural coincidences is afforded by the tabular form of data display as depicted in Table 3.2. The patterns can be detected by going back and forth between the overview and the quotations constantly comparing different pieces and connecting the dots in line with well-established grounded theory (Charmaz, 2006; Glaser and Strauss, 1974) traditions.

Moreover, the data transformation can continue with diagramming. One of such useful diagrams stems from an industry standard in business process modeling and notation, also known as BPMN (Object Management Group Inc., 2011). BMPN diagrams normally describe a single business process, and building this type of diagram for all activities conducted by the focal firm and its most important collaborators within the business model is not an easy task. Despite the difficulty involved, this procedure can further enable the analytical process by forcing the researcher to become "intimately familiar" (Eisenhardt, 1989b) with the case data.

When constructing these diagrams, it is important to separate time periods and produce a new diagram for each period (e.g. quarter). Also, in order not to overcomplicate the visual representations, it is essential to

maintain a moderate level of abstraction, i.e. remain on the sub-activity level (e.g. a sub-activity would be "customer acquisition" under the activity "marketing"). Changes in the governance, content and structure of activities can be color-coded for easier spotting of changes. We further recommend printing out these diagrams as posters and mounting them in a temporal sequence so that the progression of changes is visible, and is visible all at once, which it would not be on a small computer screen. This may be a matter of preference of the individual researcher though.

Another kind of diagram depicting a higher level of abstraction is a timeline, such as Figure 4.3 (see Chapter 4). In this abstracted visual representation, all major changes across all periods are displayed on one page to facilitate the analysis process by providing an overview of major events. The focus of this diagram is on individual activity sets, their start and end points relative to other activity sets within the business model, and the additions and removals of activities within these sets. The activities being tracked here are aligned with the generic value chain (Porter, 1985), i.e. R&D, sales, marketing, service etc. The sub-activities are not directly evident but changes in them are reflected in higher-level changes of activities. For example, a sub-activity addition (+) to an R&D activity translates into an extension (=+) of the R&D activity. In a similar vein, simultaneous addition (+) and removal (–) of subactivities counts as a revision (=+–) of the parent activity.

Finally, the researchers embarking on the exploration journey with this technique should not expect an easy or a semi-automatic arrival at findings. While the technique enables and facilitates the analysis, in the end it is still the human brain that processes the data in their more or less attractive forms, and connects the dots. Time away from the data in between the various transformations proved to be helpful for us.

To conclude the case introduced above, one immediate high-level finding is that during the period of rapid growth in 2007–2012, the firm

actually regularly adjusted its various activities. Whereas major, tectonic business model shifts may indeed be a rare occurrence during high growth, the firm was constantly stretching or renewing its business model at the activity and sub-activity levels to ensure sustained growth. This is contrary to a belief that once a viable business model is discovered and the firm enters the high-growth stage, no more changes are necessary and management should focus attention on increasing the efficiency and predictability while scaling up operations (Doz and Kosonen, 2008, 2010; Sosna *et al.*, 2010).

A more fine-grained look into the activity system and its elements on a quarterly basis can provide us with a granular way to understand the sequence and nature of changes encapsulated in the business model change process – thus allowing us to track the firm's realized strategy (Mintzberg, 1978) and to detect trajectories of strategic change.

3.4. DISCUSSION AND CONCLUSION

The objective of this paper was to introduce a technique for tracking business model change over time – more specifically, a technique to enable and facilitate the processing of qualitative case study data for further analysis which is usually shrouded in mystery, depends on the individual researcher, and is typically not disclosed in publications (Eisenhardt, 1989b; Fiss, 2009; Miles and Huberman, 1984). Before doing so, we reviewed the methods, data sources and measures of business model change to describe the methodological state of the art in business model change research and to expose its limitations.

We illustrated the application of the technique with a case study of a software development firm that was constantly adjusting its activities and at the same time demonstrating rapid growth of more than 25 per cent in both revenues and profit during 2007–2012. Our proposed technique relies on the activity-based view of the business model (Amit and Zott, 2001; Zott and Amit, 2007, 2010, 2013) and uses the value chain concept (Porter, 1985) and

the typology of business model change (Cavalcante *et al.*, 2011) to classify the collected data. While certainly not without its limitations, the technique is useful for retrospective longitudinal studies of business model evolution. Annual and interim reports and news releases to the stock exchange provide the researcher with a rather reliable and rich source of data, which are produced following the legal requirements to disclose the information that is reasonably expected to influence the firm's share price.

We contribute to the development of the business models literature by offering a methodological and analytical tool. We advocate for the use of secondary data, i.e. reports and news releases as a sufficient data source to study changes in the business models of public firms. We further elaborate how these data can be collected, classified and displayed to facilitate further analysis.

The proposed technique offers several advantages.

First, the technique utilizes pre-existing snapshots (reports to the investor community) of states and changes in the firm's activities thus enabling retrospective, longitudinal studies without the burden of spending years of research with no guarantee of useful findings.

Second, retrospective studies where the primary source of data is interviews, have inherent informant memory and ex post rationalization biases (Huber and Power, 1985). While the latter bias is not completely unavoidable, it is reduced in the proposed technique by using the snapshots which are closer to the actual change events (at most one quarter away) than they would be in the case of interviews in the present about the distant past.

Third, the technique relies on such data sources as annual reports, quarterly reports and news releases submitted to the stock exchange, in which firms are legally required to disclose the information that is reasonably expected to influence their share price. This requirement goes even beyond what is necessary to follow the firm's changes in activities and the business

model, which are indeed known to influence performance (Teece, 2010; Zott and Amit, 2008).

Fourth, the firm's business model is a strategic management topic meaning that the knowledge about the business model is possessed by senior executives who are busy and therefore difficult, if not impossible, to arrange interviews with, especially when the researcher does not have anything tangible to offer in exchange. Additionally, the issues of strategic importance are normally considered confidential, and executives may not be willing to talk about the business model with a stranger. The proposed technique eliminates the need for interviews with these "elite informants" (Kvale, 2007) altogether.

As for the limitations, we draw attention to the following issues.

First, secondary data are normally considered to be generated for other purposes thus limiting their usefulness. However, in our case the purpose of annual reports and news releases is to inform investors about the performance of the firm, to explain how the business works and which actions management took or plans to take to improve performance. We find that these purposes fit well with the research interest in tracking business model changes. Further, it is not an uncommon practice to rely on secondary data in business model innovation research (see e.g. Amit and Zott, 2001; Demil and Lecocq, 2010; Park, 2011).

Second, publicly traded firms may behave differently from non-listed ones due to the pressure of the financial markets. Ownership structure may further influence the public firm's behavior: firms with a majority of family or management shareholders may be less reactive to the demands of the financial markets than those entirely owned by the public. This puts a natural limit on the generalizability (in the case of quantitative studies) or transferability (in the case of qualitative studies) of findings. Thus, the technique may not be applicable to studies of private SMEs which are not

required to publish detailed reports; and when they do, it is mostly up to them to decide what to include in these reports.

Third, the reading and coding of company reports and news releases are subject to the researcher's active interpretation. Due to sometimes very short and vague statements found in these sources, one researcher may not always classify an event in exactly the same way as another would have done. In order to minimize this bias, we suggest that a minimum of two researchers conduct a study and their agreement is measured until a satisfactory level of consensus is reached (researcher triangulation).

In terms of the reliability and validity of the proposed technique, to allow replicable and valid inferences to be drawn, there are two issues that need to be discussed here: the reliability of the data and the reliability of the coding instrument (Milne and Adler, 1999). The data from the reports of listed firms are considered reliable due to regulatory disclosure obligations, as explained above. The coding instrument in turn was developed by using a solid grounding in theory: the activity-based view of the business model (Zott and Amit, 2010), the typology of business model change (Cavalcante *et al.*, 2011), and the value chain (Porter, 1985). The coding categories are clearly defined and do not overlap, as recommended by Guthrie *et al.* (2004), which also reduces the need for multiple coders (Guthrie and Abeysekera, 2006; Milne and Adler, 1999).

We recognize that some scholars may not be entirely comfortable with the activity-based view of the business model and our reliance on the value chain concept to break down the business model into activities and sub-activities, as suggested in Step 1 of the technique. Also, a seeming lack of attention to the financial aspects in the definition of the business model used may give rise to skepticism. However, our proposed technique is in fact open to other perspectives on the business model concept. For example, changes in a business model can be structured and tracked according to the "building blocks" of the popular business model canvas framework (Osterwalder and

Pigneur, 2010). As for the financial aspects, the performance of the business model should in our opinion ideally be traced via a combination of activity-based costing and customer value analysis. Customer value analysis would allow the firm to understand what the customer is willing to pay for, in which way and how much, whereas activity-based costing would allow the firm to optimize its business model by creating and extending activities that generate most value at the least cost, and revising or terminating activities which generate the least value at the most cost. These analysis dimensions are closely linked to the business model, but they are conceptually distinct, which is why we chose not to focus on them in this paper.

Another criticism might be the practicality of using our proposed technique with larger samples of firms and with firms releasing many statements per period. This will naturally increase the volume of textual data to be processed by humans thus inviting to consider automated techniques such as, for instance, in Lee and Hong (2013) who propose to count frequencies of certain word occurrences in the descriptions of the firm's business model in different time periods. Such text mining techniques certainly deserve attention and may be useful for larger amounts of data, but they, too, are not without limitations. The thickness of case data is inevitably lost with each round of data reduction, and sense-making is made very ambiguous if not almost impossible. However, certain studies may benefit from automated and more quantitatively oriented analyses as opposed to our proposed *qualitative* content analysis (George, 2006).

For further development of the proposed technique, more investigations into the credibility of various additional secondary sources can be undertaken, e.g. financial analysts' statements, journalists' investigations, industry news publications, and published interviews with management of the focal firm. A variety of sources would allow for cross-verification (data triangulation) and possibly a better contextualization of certain events.

3.5. IMPLICATIONS

Business model innovation, renewal, evolution and change are becoming important areas in strategy, entrepreneurship, and innovation management research. The business model tracking technique proposed here is an analytical tool that can help researchers observe patterns of change by systematically collecting, classifying and analyzing firm reports and news releases. This technique invites for being tried out in future empirical studies.

This paper equips researchers with a methodological tool to facilitate investigations into various business model change problematics. The technique paves the way for studies focusing on such questions as: What are the different trajectories of business model evolution? Why do some firms' business models change via similar trajectories while others evolve differently? What is the relationship between various business model evolution trajectories and firm performance?

The applicability of the technique to managerial practice is also worth noting. First, the processed and visualized data can be used as a dashboard for tracking one's own firm's progress towards a new business model with possible links to performance via activity-based costing. Second, the technique can be used for competitive intelligence collection and analysis by utilizing publicly available information. Third, firms can be benchmarked against strategic groups of competitors, collaborators and firms from unrelated industries to discover and apply best practices to achieve competitive advantage and growth. Finally, the technique may prove useful for merger and acquisition decision support in firms or investment banks looking for strategic fit between the acquirer's and the target firm's strategic development trajectories.

4. TRAJECTORIES OF BUSINESS MODEL CHANGE

By using a technique to track business model changes via publicly available secondary data, this paper scrutinizes the case of a high-growth firm in the automotive industry (Tesla Motors Inc.), explicates the strategic trajectories of its business model changes in 2003-2014 and shows that management can consider the following directions when planning for growth: (i) enhancing the core business model, i.e. adding new complementary activities to provide the complete customer experience, (ii) "unlocking the nucleus" of the core business model, i.e. commercializing existing activities as separate products for new markets, and (iii) expanding beyond the core, i.e. adding unrelated activities resulting in new products for new markets. The unlocked nucleus seems like a rather potent trajectory that may deliver short-term revenues while the firm is working towards delivering the longer-term promise of the original core business model, or even simultaneously enhancing the core. The paper contributes to the literature on strategic management, business model innovation, and high-growth firms.

4.1. INTRODUCTION

The development of a new industry, firm, or product classically goes through a number of stages over time: introduction, growth, maturity, and decline. According to Utterback and Abernathy (1975), the life cycle model suggests that early in the product life cycle, firms focus on product innovation. As the industry matures, the focus shifts to reducing the cost of an increasingly standardized product, meaning that process innovation takes over product innovation. Further into maturity and decline, all innovation slows down as investments in the various technologies reach the point of diminishing returns.

Firm growth has been a prominent research area since the seminal work of Penrose (1959). More recently, the focus has shifted from "just" growth to high growth. The reason is that rapidly growing firms have been found to disproportionately contribute to new job creation (Birch and Medoff, 1994), thus making them an important research stream of high interest to policy makers. These high-growth firms are typically defined as the firms annually growing at 20 per cent or more for four years. However, the exact criteria vary across countries and studies.

Business model innovation is a different kind of innovation that is distinct from product and process innovation and assumes a change of architectural nature. Scholarly attention to business models and business model innovation has been rapidly increasing since the early 2000s, fostered by the development of information technology and especially the internet that allowed rethinking business as usual by reconfiguring traditional industry structures and changing the firm's role in the value chain. Since then, positive links have been established between the business model and firm performance (Casadesus-Masanell and Ricart, 2010; Malone *et al.*, 2006; Zott and Amit, 2007, 2008) and between business model innovation and

competitive advantage (McGrath, 2010; Teece, 2010) thus justifying the importance of this new kind of innovation.

Both sales growth and business model innovation are obviously vital for firms while the effects of the development of businesses are significant for the welfare of society. Despite the importance of both high growth and business model innovation, they, however, have not been studied in tandem. The literature on high-growth firms has not yet tackled the role of business model innovation in the period of rapid growth despite having studied a multitude of other antecedents and consequences of high growth, as evidenced by the literature review below. The literature on business model innovation in turn focuses either on startups or, more recently, on mature established firms. The growth stage between launch and maturity has been largely ignored by the business models literature.

This paper aims to contribute to the emerging body of literature on business model innovation and a more established field of high-growth firms in the discipline of strategic management. Since the literature on business model innovation during high growth is practically non-existent, but the importance of the phenomenon for the strategic management of the firm is high, this paper aims to lay the foundation for our understanding of the business model changes a growing firm may deliberately go through. The present case study consequently addresses the question of which possible strategic trajectories of business model change may be available for management's consideration when planning for growth.

For the lack of research in this area, the intuitive assumption may be that the business model does not need to change during high growth, because it has started generating rapidly increasing sales, and hence it is not the changes in the business model that enable growth but the original business model itself (doing more of the same). But can we be certain about this? If changes in the business model of a rapidly growing firm can occur and stimulate additional growth, the firm's management and investors need to

understand the overall influence of such changes on firm performance, to properly steer the firm through the growth stage by aligning with the most lucrative strategic trajectories.

Business model changes may be observed on the level of activities and not necessarily on the high level of the overall business concept. Therefore, in this paper the activity-based view of the business model is used as an analytical framework in line with Zott and Amit (2010, 2013) and Cavalcante *et al.* (2011). In this view, the business model is defined as a set of activities (core business processes) that the focal firm and its collaborators repeatedly conduct to transform inputs into an output (a value proposition for a specific customer segment). Business model change refers to an addition or removal of a set of activities to/from the business model. Here, business model change is used interchangeably with business model innovation.

The paper proceeds as follows. First, the literature review on high growth firms and business model innovation introduces what we already know about the antecedents and consequences of high growth as well as the phenomenon of business model innovation. Second, the methodological approach is described. Third, based on an in-depth analysis of the case of a young rapidly growing firm in the automotive industry, Tesla Motors Inc. in 2003–2014, three possible business model change trajectories are proposed. The paper concludes by discussing the findings and implications for research and practice.

4.2. LITERATURE REVIEW

4.2.1. HIGH-GROWTH FIRMS

Traditionally growth is measured in terms of employment or sales. Employment is of primary interest to policy makers, while sales figures are what matter to managers and investors. In the best tradition of maintaining the relevance of management research to practice, I therefore focus on what

matters to the practice of management – revenue (sales) growth. A search for papers on high-growth firms in the EBSCO Business Source Complete database returned 363 journal articles featuring the combination of keywords "high growth" and "firm" in title or abstract. Upon closer examination, only 28 papers measured growth in terms of sales (not employment, assets or market capitalization) and described various antecedents and consequences of high growth.

Among the many factors that have been established as influencing high growth positively or negatively, there are those related to market trends (Arrighetti and Lasagni, 2013; St-Jean, Julien, and Audet, 2008), the entrepreneur and the management team, including their values and motivation for starting up a business (Feeser and Willard, 1990; Littunen and Tohmo, 2003; Siegel, Siegel, and Macmillan, 1993; Tomczyk, Lee, and Winslow, 2013), origin and location close to cradles of innovation such as universities and science parks (Lindstrom and Olofsson, 2001; Löfsten and Lindelöf, 2003), strategic orientation, direction and actions (Bamiatzi and Kirchmaier, 2014; Cunneen and Meredith, 2007; Feeser and Willard, 1990; O'Regan, Ghobadian, and Gallear, 2006; Siegel *et al.*, 1993; Teal, Upton, and Seaman, 2003), innovation efforts in terms of R&D (Lindstrom and Olofsson, 2001; Parker, Storey, and van Witteloostuijn, 2010; Segarra and Teruel, 2014), marketing activities covering customer orientation, pricing, advertising and export (Bamiatzi and Kirchmaier, 2014; Feeser and Willard, 1990; Keen and Etemad, 2012; O'Regan *et al.*, 2006; Parker *et al.*, 2010; Siegel *et al.*, 1993; St-Jean *et al.*, 2008; Teal *et al.*, 2003), operational efficiency, leanness and use of best practices (Arrighetti and Lasagni, 2013; Parker *et al.*, 2010; Siegel *et al.*, 1993), business and personal networks (Cunneen and Meredith, 2007; Larson, 1992; Lechner and Dowling, 2003; Littunen and Tohmo, 2003; Segarra and Teruel, 2014; St-Jean *et al.*, 2008), management leadership style (Littunen and Tohmo, 2003; Nicholls-Nixon, 2005; Sadler–Smith *et al.*, 2003), opportunistic and growth-seeking behavior of the management (Cunneen and Meredith, 2007; Löfsten and Lindelöf, 2003;

O'Regan *et al.*, 2006; St-Jean *et al.*, 2008), age and size of the firm (Arrighetti and Lasagni, 2013; Segarra and Teruel, 2014), and other factors such as employee motivation (Tomczyk *et al.*, 2013), financing (Bertoni, Colombo, and Grilli, 2011; Segarra and Teruel, 2014), and ownership concentration (Arrighetti and Lasagni, 2013; Parker *et al.*, 2010).

The extant research focuses not only on the factors promoting or reducing high growth but also deals with, although to a lesser extent, the consequences of such growth. The effects of rapid growth were found to have an influence on R&D activity in terms of the quantity and variety of innovation (Audretsch, 1995; Colombelli, Krafft, and Quatraro, 2014), on the creation of new jobs (Littunen and Tohmo, 2003), on the development and intensity of firm relationships (Beekman and Robinson, 2004; Lechner and Dowling, 2003), on sales growth in the following periods (Hall and Tochterman, 2008; Parker *et al.*, 2010), and on the amount of problems due to growth (St-Jean *et al.*, 2008). It has also been found that profitability may not necessarily be associated with prior high growth (Markman and Gartner, 2002).

However, the reviewed literature was surprisingly silent about the role of business model innovation. Innovation as such has received attention, but was only thought of in terms of R&D effort, i.e. as the innovation of products or processes. Since business model innovation is something that management can exercise control over and that can impact firm performance, it is rather alarming that we do not find studies of business model innovation in the literature on high-growth firms. We neither know the effects of business model innovation on growth nor do we understand the trajectory the process of business model change may take during rapid growth.

4.2.2. BUSINESS MODEL INNOVATION

Business model innovation literature focuses either on startups or on mature firms with the latter receiving significantly less scholarly attention (Demil *et*

al., 2015). In the case of new ventures, the dominant topic is experimental search for the right business model, while in the case of established firms the discussions can be fixed under the label of business model renewal and evolution, representing the change from one business model to another. The growth stage of firm development is largely missing in the business models literature.

The search for the business model in the introduction stage of the life cycle is characterized by experimentation and trial-and-error learning leading to a validated business model that has proved to work in the market. These insights come from both academic sources (e.g. McGrath, 2010; Sosna *et al.*, 2010) and more practitioner-oriented publications of the "lean startup movement" (Blank, 2005, 2013; e.g. Blank and Dorf, 2012; Osterwalder and Pigneur, 2010; Ries, 2011).

A significant number of scholars focus on business model innovation as a vehicle for corporate transformation and renewal (Zott *et al.*, 2011). The process of business model change/innovation has been proposed to follow certain stages during its life cycle. A proposition derived from Linder and Cantrell's (2000) interviews with 70 company executives typifies business model change according to the degree of change in the core logic: realization (no change), renewal (leveraging core skills to create new positions on the price/value curve), extension (additions of new business lines to existing operations), and journey (complete replacement of the business model). Another study of a more conceptual nature distilled four change types that can occur in the life cycle of a business model: creation, extension, revision, and termination (Cavalcante *et al.*, 2011). A case study centered on a firm's activity system introduced another set of ideal change types in the core elements of the firm (thickening, patching, coasting, trimming) and certain patterns that a firm may follow over its lifetime (thin-to-thick, patch-by-patch) (Siggelkow, 2002). The phases that a firm can go through on its way to a new business model have been envisioned, for instance, as specification,

refinement, adaptation, revision, and reformulation (Morris *et al.*, 2005), or as analysis, design, implementation, and control (Bucherer *et al.*, 2012).

However, none of the available papers seems to have addressed the phenomenon of business model innovation during the growth stage of the firm's life cycle. We do not know if any business model changes may occur, what these changes can be, or what evolution patterns they can follow if they do occur. We also do not know what the impact of such changes on the firm's revenues, costs and profitability may be. Next follows a case study of a rapidly growing firm; it attempts to answer the question of how a business model can change during this period of firm development, thus assisting managers to make better informed choices about future strategic business development efforts.

4.3. METHODS

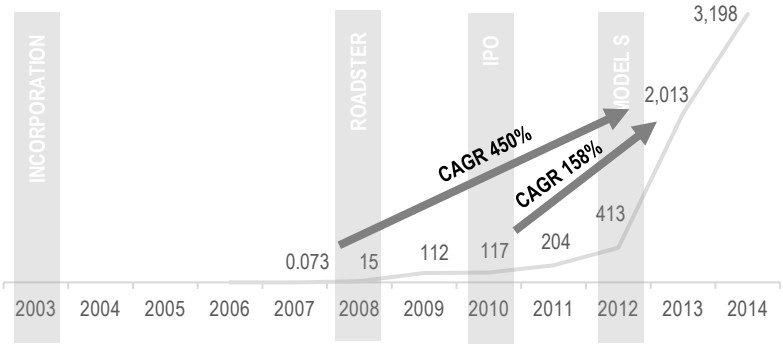
4.3.1. THE CASE OF TESLA MOTORS

This paper is an exploratory longitudinal single case study, where the case is selected for theoretical, not statistical, reasons (Eisenhardt, 1989b; Glaser and Strauss, 1974). Since there is no unified definition of a rapidly growing firm in the literature, I define a rapidly growing firm as a firm that has increased its revenues at the rate of at least 50 per cent each year for a period of three consecutive years.

To identify a case for this study, I used the Orbis database to select a sample of young firms no more than 10 years of age, i.e. those incorporated in or after 2003. Among US listed public companies, there were 48 such firms. The 2013 sales figures in this sample varied from USD 0.3 million to USD 2,013 million. The firm that achieved the highest level of revenues in 2013 (USD 2,013 million) is Tesla Motors Inc. The firm's compound annual growth rate (CAGR) was 158 per cent in 2010-2013 (and 450 per cent since its first sales in 2007, see Figure 4.1). The high absolute sales figure makes the

case especially interesting because it signifies the scale of the firm's operations where a certain level of complexity and possible changes in the business model may be found.

Figure 4.1. Tesla Motors: Revenues (million USD) and major milestones, 2003–2014



Tesla Motors is a young rapidly growing firm in the automotive industry; it focuses on the design and manufacturing of fully electric vehicles. The company is headquartered in California and sells its vehicles over the internet directly to end consumers in North America, Europe and Asia. Tesla Motors was founded in 2003 and to date (beginning of 2015) has introduced two vehicle models – the Roadster and the Model S. Additionally, the company designs, develops and sells electric powertrains and components as well as selling regulatory emission-related credits to other auto manufacturers. The company runs its own network of stores/galleries, service centers, and chargers. Since 2012, the company has had a manufacturing plant in California, and in 2014 it started building a giant battery factory in Nevada.

Tesla Motors operates in one industry (electric motor vehicles), which makes it easier to isolate and expose the changes to its business model, compared to a diversified multi-business conglomerate. Being a listed company since the IPO in mid-2010, Tesla Motors has been filing public reports for four and a half years as of this writing. 76 annual, quarterly and current reports amounting to 3,671 pages and covering the firm's business

activities in 2007–2014 are readily available for in-depth investigation through the EDGAR online database maintained by the US Securities and Exchange Commission (SEC). Reports on earlier periods are not significant for the purpose of this study because the firm did not generate revenues before 2007. First sales signal the completion of the business model formation process (that is, validation in the market) and the exit from the startup phase, where business model search activities occur (Blank, 2013; Blank and Dorf, 2012).

4.3.2. DATA COLLECTION AND ANALYSIS

The CEO or top management team tend to own business model innovations (Bucherer *et al.*, 2012). Tesla Motors is one of those companies where direct access to upper echelon managers for interviews is obstructed. This is due to the busyness and the demanding schedules of the management team, which is symptomatic of the high-growth stage of firm development.

The main source of data for this longitudinal exploratory case study is the firm's reports filed with the Securities and Exchange Commission. This source provides sufficient information for tracking major changes over time at the level of core business activities (see Chapter 3 for more details). The reported data is enhanced with published interviews with the CEO Elon Musk in the industry media, retrieved from the Factiva database.

Data processing for analysis involved three steps (see Chapter 3). First, the information about changes in activities was systematically extracted from the reports and published interviews and coded under the categories aligned with the generic value chain (Porter, 1985). Second, comprehensive business process diagrams for each of the 18 quarters after the IPO (2010–2014) were constructed to visualize the states and changes in the activities of the firm and its partners. The diagrams are provided in the Appendix (Section 4.7) as smaller copies of the original A0-sized posters. Third, a high-level summary timeline diagram (see Figure 4.3) was distilled from the detailed diagrams to

highlight major changes in the firm's business model. These steps were necessary to reduce the massive volume of data, to become intimately familiar with the data and to trigger the analytical process (Eisenhardt, 1989b). Finally, as a result of the analysis, business model changes were conceptually linked to performance indicators (Table 4.1) and their strategic development trajectories were identified (Figure 4.4).

4.3.3. TRACKING BUSINESS MODEL CHANGE

In this paper, the business model in its simplest form is conceptualized as a set of activities (i.e. core business processes) that the focal firm and its collaborators repeatedly conduct to transform inputs into an output where the output is a value proposition for a specific customer segment (cf. Cavalcante *et al.*, 2011; Zott and Amit, 2010, 2013).

A business model can consist of one or more activity sets. The activities that comprise an activity set are aligned with the generic value chain (Porter, 1985), e.g. R&D, marketing, production, sales, service. Activities can be different for different product-market combinations. An activity set is not fully in place before the first delivery of the product to a customer occurs (along with revenue recognition), meaning that the activity set (or the business model in the case of a single activity set) is still in the process of formation.

A change in the business model occurs when an activity set is added to or removed from the business model. This change can be identified when a product-market combination is added to or removed from the business model which is observable in the disclosed revenue and cost categories of the income statement (Demil and Lecocq, 2010). An addition or removal of an activity to/from an activity set is not a business model change but a change in the corresponding activity set. A hierarchy of activities can be noticed here: business model – activity set – activity – sub-activity.

Activities can be removed completely from the business model, added anew, moved to another firm (outsourced) or moved back to the focal firm (insourced). Higher level activities can be "optimized" by removing or adding sub-activities and the actors in charge of them. Likewise, the sequencing of activities can be changed, in line with Zott and Amit's (2010, 2013) view of the business model as the content ("what"), governance ("who") and structure ("how") of activities, although sequencing of activities is more difficult to observe from the outside. Tracking changes in the sequence of sub-activities would require access to internal data, which is not always possible. It is fair to expect that changes to the sequence of high-level activities occur rarely and that they are associated with the business models that are radically new to the industry.

4.4. ANALYSIS OF THE CASE

4.4.1. BACKGROUND

Managing growth is important for Tesla Motors as evidenced by a disclosure in the initial public offering prospectus (Tesla Motors Inc., 2010: 94) and all subsequent reports. It is equally important for it as a publicly traded firm to ensure the growth of its share price. The major factor influencing share price is the expectation of the financial market about the firm's performance where profitability plays a central role.

As depicted in Figure 4.2, since 2009 Tesla Motors operates with a gross profit (28% in 2014) but is yet to achieve a positive operating profit (-7% in 2014) and combat net losses. In its entire history, the firm has only had a net profit in one quarter (Q1 2013) due to accounting and currency exchange gains; its operating profit, however, has always been below zero. This performance is apparently acceptable to investors who support the firm's stellar revenue growth in the hope that it achieves profitability in the longer term.

In Figure 4.3, the Tesla Motors business model is represented as a composite of five activity sets resulting in the creation of the following categories of value propositions: Development Projects, Electric Vehicles (EV), Financial Services, Regulatory Credits, and Own Sales/Service Network. By looking at the figure, one can immediately see that not all activity sets were present in the business model from day one.

In the following section I will briefly compare the changes in the firm's activities (Figure 4.3) to the key performance indicators such as absolute revenue growth (Figure 4.1), and cost of goods sold (COGS), research and development (R&D) and selling, general and administrative (SG&A) costs relative to revenues (Figure 4.2).

4.4.2. CHANGES IN THE BUSINESS MODEL AND PERFORMANCE

As shown in this study, business model changes may have an effect on both revenues and costs of the firm. An addition of a new value proposition, which comes with an activity set behind it, would at first generate costs and no revenues. With the first sales the revenues would start flowing in. Further in the life cycle, the reduction of costs would become central as the product reaches maturity. Here, both costs of inputs (materials and labor) and the selection of activities would be obvious targets for improvement.

Below follows a highly condensed (from 3,671 pages of SEC filings plus media coverage) account of major activities conducted by Tesla Motors and the financial implications of changes in these activities.

In 2003–2006 Tesla Motors was primarily working on the development of its first EV (Roadster) and the electric powertrain for this vehicle; this generated zero revenues and contributed to the accumulation of net losses. In mid-2006, the first announcements about the upcoming expansion of the EV offering (Model S) were made to the public (Unknown, 2006). The Model S was being developed also as a platform for other vehicles – an SUV and a

mass market vehicle later to be known as Model X and Model III. In the second half of 2006, the firm started building its sales and service capabilities, preparing for the launch of the Roadster. However, this did not happen until early 2008 when the production of Roadsters took off and when the first store opened its doors to the public. Before that, the company was selling reservations by phone and online. About this time the company began producing powertrains and battery packs for other auto makers.

In 2007 the only source of revenue was the sales of branded merchandise, while in 2008 it consisted of the sales of Roadsters and regulatory credits to other auto makers (e.g. Honda) that the company was earning with each EV delivery. The development projects so far only generated R&D costs as no contracts with buyers were in place.

In 2009, the firm monetized its powertrain development efforts by delivering the first battery packs to Daimler. Also, Daimler became a strategic investor (10% of equity, one seat on the board) and an active participant in Tesla's R&D with its expertise in mass market vehicles and supply chain. The same year Tesla Motors expanded its service offering with mobile technicians called Tesla Rangers, introduced its newest EV prototype, the Model S, and began pre-selling it by taking reservations.

2010 was the year of the IPO. The company launched its own leasing service for the Roadster, deepened the R&D relationship with its battery supplier Panasonic, involved Toyota as a strategic investor (5% of equity) and an R&D participant in its powertrain business, and started building a production plan for the Model S. Revenues stalled due to limited manufacturing capacity, the COGS improved, but the R&D and SG&A costs rose to record levels in relation to revenues. As CEO Elon Musk explained, "People need to appreciate that if we were just making the Roadster, we would be profitable as a company, but we are in massive expansion mode. We are increasing our volume by 30 to 40 fold, so it is just impossible for a company to be profitable given that level of growth." (Moyon, 2010).

Figure 4.2. Tesla Motors: Bumpy road towards gross and operating profitability (% of revenues), 2007–2014

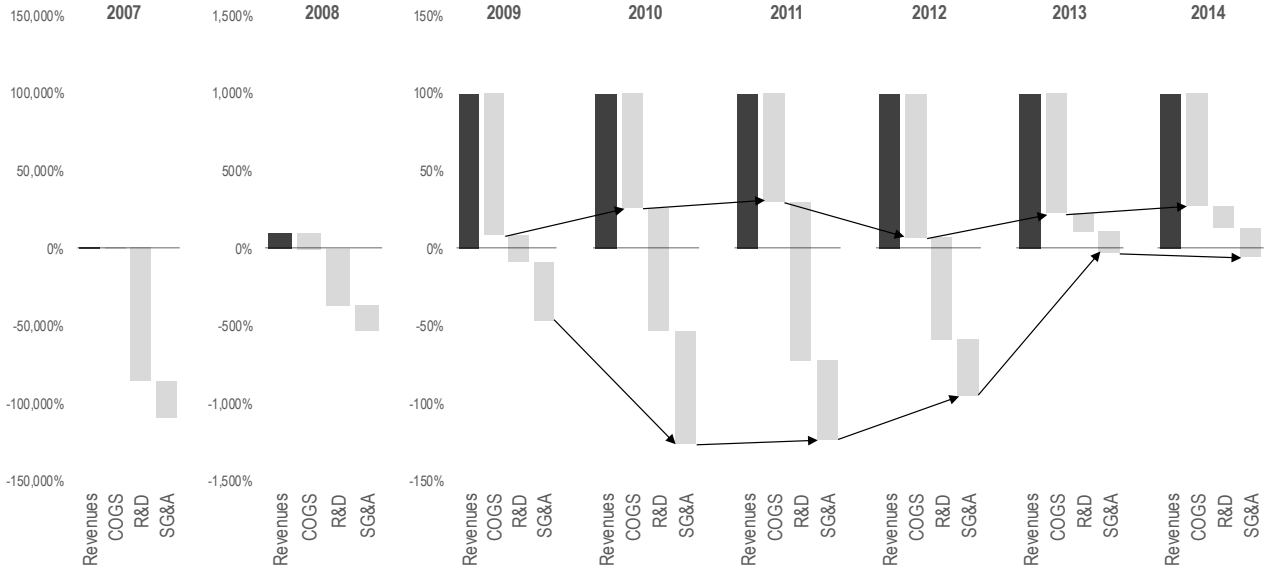
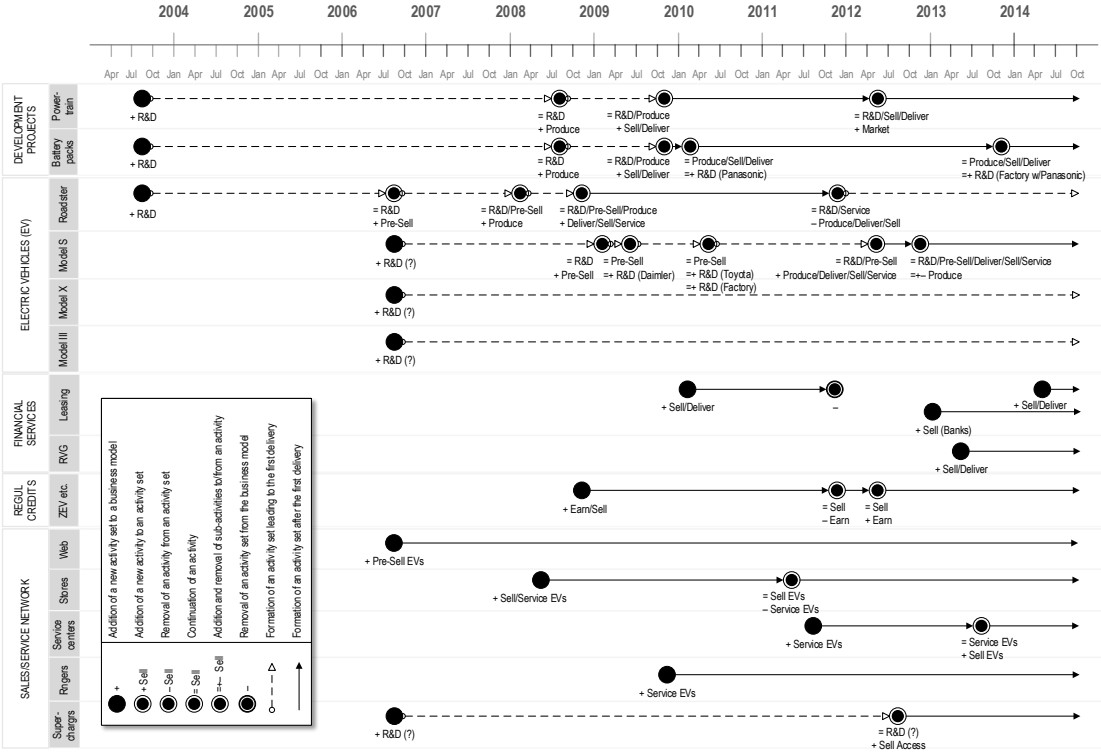


Figure 4.3. Tesla Motors: Changes in the business model and activity sets, 2003–2014



Similar financial results, although double the scale, resurfaced in 2011, when the company was selling out the remaining Roadsters and progressing with the factory construction for the Model S. The same year Tesla Motors moved service from its stores to specialized service centers. The discontinuation of Roadster sales and deliveries also threatened to end the revenue streams from leasing services and regulatory credits.

However, it was a necessary sacrifice as in 2012 the company finally finished the Tesla factory and started producing and delivering the Model S to a broader customer segment than the initial Roadster. The regulatory credit revenue stream was restored but not so the leasing revenues. Leasing services returned later through a third party. Leasing generally is a double-edged sword: it helps generate additional vehicle sales but dampens the current revenue due to the deference of revenues to future periods as required by the leasing accounting. The production process at the Tesla factory was being optimized as the production volume was ramping up, so the operating profit was still very low at minus 95 per cent due to increased COGS and in spite of the improving R&D and SG&A levels in 2012.

The results of operations in 2013-2014 were better (-3% and -6% operating profit, respectively) as the firm's revenues skyrocketed thanks to successful Model S sales, and the large cost base spread over a much larger revenue base. In the course of 2013, the company added a resale value guarantee service (RVG), which allows vehicle buyers to sell their vehicles back to the company at a pre-determined price. In essence, it has an effect on the income statement akin to the provision of leasing services – revenues are deferred to future periods. Revenues from development services disappeared in the last quarter of 2014 but the other activities to ensure powertrain deliveries to Daimler continued; however, the services were expected to be insignificant in future periods. Tesla Motors was still not profitable as of 2014, but was close to it and would be able to deliver profits should it wish to lower its growth ambitions and reduce R&D and SG&A costs.

Revenue growth certainly comes at a cost, and here "optimization" of the business model can prove useful to keep profitability under control. Such optimization can take place by eliminating entire activity sets with corresponding value propositions (e.g. Tesla Motors temporarily stopped the provision of own leasing services at the end of 2011) or revising lower level activities (e.g. production process improvements in a new Tesla factory in the second half of 2012 as the first batches of the Model S were being manufactured).

The case of Tesla Motors shows us how business model changes on the level of activities may impact the firm's performance. The typology of changes and the vectors of impact are summarized in Table 4.1.

Table 4.1. The vectors of influence of changes in firm's activities on performance

Activity	Type of change		Influence on:			
			Revenues	COGS	R&D	SG&A
R&D	+	(add)	No	No	↑	No
	–	(remove)	No	No	↓	No
Production	+	(add)	No	↑	↑ / No	No
	–	(remove)	No	↓	↓ / No	No
Sales	+	(add)	No	No	No	↑
	–	(remove)	No	No	No	↓
Delivery	+	(add)	↑	No	No	↑
	–	(remove)	↓	No	No	↓
Marketing	+	(add)	No	No	No	↑
	–	(remove)	No	No	No	↓
Service	+	(add)	↑ / No	↑ / No	No	No
	–	(remove)	↓ / No	↓ / No	No	No

Some of the activities are pure cost drivers (R&D, Production, Sales, Marketing) while others can increase both revenues and costs at the same time (Delivery, Service). Moreover, some of the activities may have an ambiguous effect on revenues and costs. For example, production is accounted in R&D costs when no sales occur but in COGS after deliveries

begin; selling by itself only increases SG&A costs unless the product is delivered to the customer; delivery allows to recognize revenues, but it also includes shipping of a product, which is an SG&A cost; and service is a COGS cost unless the customer pays for it.

4.4.3. TRAJECTORIES OF BUSINESS MODEL CHANGE

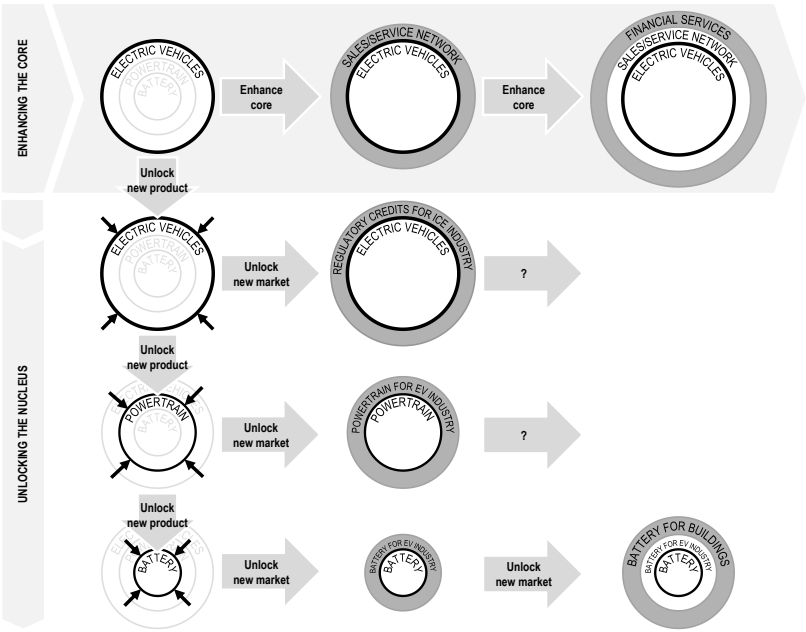
The case of Tesla Motors demonstrates that apart from perfecting its core product and selling more of the same aiming to grow revenues, the management of a firm may consider the following strategic trajectories of business model change:

(i) **enhancing the core** business model with new complementary activities, i.e. those activities that are vital for additional sales of the core product (electric vehicles) and add up to the totality of customer experience (own sales/service network, financial services);

(ii) **"unlocking the nucleus"** of the core business model, i.e. commercializing those activities that the firm is already conducting and that are of value to other markets (powertrains and batteries for aspiring EV manufacturers, regulatory credits for auto manufacturers who are not selling enough EVs).

The two trajectories are stylistically depicted in Figure 4.4. The directions are not exclusive and can be taken by the firm at the same time, as the case of Tesla Motors reveals.

Figure 4.4. Tesla Motors' business model change trajectories: (i) enhancing the core and (ii) unlocking the nucleus



By enhancing the core with its own sales and service network (rather than relying on dealers) and the network of "superchargers" (rather than relying on public utilities), Tesla Motors seems to have enabled its revenue growth by ensuring the totality of customer experience as no other parties could. In its recent annual reports, Tesla Motors justified the idea of owning the sales and service network by stressing a differentiated customer experience as the main reason behind the decision:

> "We believe that by owning our own sales and service network we can offer a compelling customer experience while achieving operating efficiencies and capturing sales and service revenues incumbent automobile manufacturers do not enjoy in the traditional franchised distribution and service model. Our customers deal directly with our own Tesla-employed sales and service staff, creating what we believe is a differentiated buying experience from the buying

> experience consumers have with franchised automobile dealers and service centers. We believe we will also be able to better control costs of inventory, manage warranty service and pricing, maintain and strengthen the Tesla brand, and obtain rapid customer feedback. Further, we believe that by owning our sales network we will avoid the conflict of interest in the traditional dealership structure inherent to most incumbent automobile manufacturers where the sale of warranty parts and repairs by a dealer are a key source of revenue and profit for the dealer but often are an expense for the vehicle manufacturer." (Tesla Motors Inc., 2014: 11)

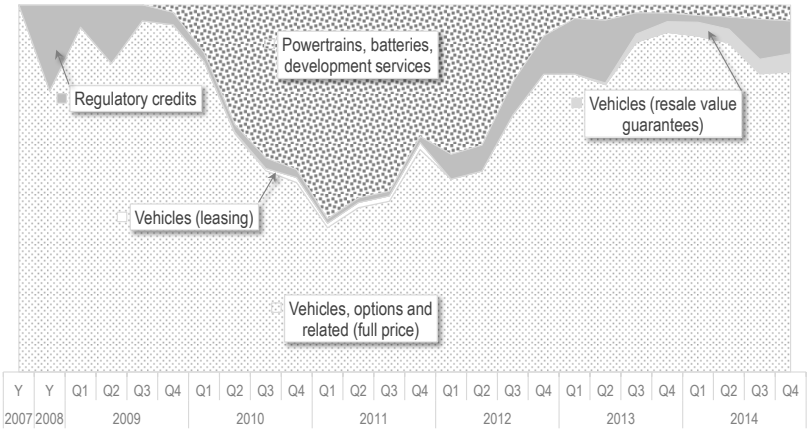
Furthermore, the company has discovered that "opening a service center in a new geographic area can increase demand" (Tesla Motors Inc., 2014: 11, 2015: 8), which is a direct evidence of the core product (electric vehicles) sales growth as the original business model is enhanced with the complementary activities (service centers).

By looking inside its core and unlocking the nucleus, Tesla Motors commercialized the activities it was already performing to develop its electric vehicles (powertrain development, battery pack development) turning out to be of interest to incumbent automobile manufacturers such as Daimler and Toyota. The later announced development of a stationary energy storage solution (battery for buildings) is another step in the direction of unlocking revenues by finding new commercial applications for the current activities. Furthermore, Tesla Motors was able to utilize favorable emission-related legislation, earn various regulatory credits for each sold zero-emission vehicle, and sell them to other automakers such as Honda.

Similarly to Tesla Motors, unlocking the nucleus was how Amazon commercialized its web services after building the vast server infrastructure for its own e-commerce website and realizing that it had value for outside customers building scalable web applications (Levy, 2011).

It must be noted that Tesla Motors did not depart from the core (yet?) and did not turn into a conglomerate by adding unrelated activity sets.

Figure 4.5. Tesla Motors: Revenues by products (reclassified from income statements, % of same period total revenues), 2007–2014



In terms of the temporal pattern of the Tesla Motors business model changes, as evidenced by the changes in revenues broken down by the resulting products (see Figure 4.5), the unlocked nucleus (powertrains, batteries, development services) rapidly grew from zero in Q3 2009 to up to 58 per cent of the total sales in Q1 2011, but began to decline after that peak, as the sales of the core product (electric vehicles) took off, further assisted by the enhanced business model (added sales/service network, financial services). The sales of the core product (electric vehicles) in the markets where emission-related regulatory credits could be earned, enabled further revenue growth by monetizing the activities that were already being conducted within the business model (manufacturing and sales of electric vehicles).

Should one be willing to speculate how Tesla Motors may evolve in the future, its strategic development pattern offers an opportunity for an educated guess.

Given the firm's public invitation to use their patents at no cost (Musk, 2014), the giant battery "Gigafactory" construction underway since Q4 2014,

the shrinking revenues from the powertrain development and the seemingly declining willingness to invest resources in custom project work as well as the dismissal of the importance of regulatory credit sales to the company's business model in public reports, the observed trajectory may suggest that the firm is focusing on vehicles and batteries only. Since Tesla Motors is seriously expanding its battery production capacity, the firm is becoming capable of eventually evolving into a battery supplier for the emerging EV industry (and perhaps also for a completely new stationary energy storage industry). The vehicle business may be kept in-house to lead the EV industry innovation by example but not to be a sales leader. As elaborated by the CEO Elon Musk, "The whole purpose behind Tesla, the reason that I put so much time and effort into creating it was to serve as a catalyst for transition to electric vehicles" (Rose, 2011).

This strategic position is similar to that of Google in the mobile devices market, where Google develops the software operating system (Android) and also a few flagship device models under the Nexus brand, while other device manufacturers capture a much larger market share with their implementations of the Google's vision. Another analogous example is Microsoft, which, despite historically being a pure software company, in recent years has attempted to enter the hardware business with the own-developed Surface laptop/tablet to serve as an inspiration and example for other OEMs building devices that run on the Windows operating system. Software is a critical component in the world of electronic devices, while the battery seems to be of such critical value in the world of electric vehicles. Controlling a critical component in the industry value chain secures the flow of abnormal revenues and profits.

By the end of 2014 Tesla Motors may have found a more profitable place in the industry value chain (i.e. the business model) and may once become a stock market darling delivering real profits, not only extensive revenue growth.

4.5. DISCUSSION AND CONCLUSION

The purpose of this paper was to determine which strategic trajectories of business model changes the management may consider when planning for revenue growth and to suggest how changes in the business model may influence a firm's performance.

Business model change and performance. As changes in the business model affect both revenues and costs, a more refined look at the underlying activities is necessary. The study used the case of a high-growth firm, Tesla Motors in 2003–2014, to reconstruct the continuum of changes in its business model and activities and related these changes to the changes in revenues, cost of goods sold (COGS), research and development costs (R&D), and selling, general and administrative expenses (SG&A).

While it is recognized that the business model matters for firm performance (Aspara, Hietanen, and Tikkanen, 2010; Casadesus-Masanell and Ricart, 2010; Malone *et al.*, 2006; Zott and Amit, 2007, 2008), the contribution of this paper is that it proposes a more nuanced understanding of the possible impact of specific business model changes on the firm's operational performance, namely revenue growth, gross profit and operating profit. The present study responds to a call to develop a deeper understanding of how business model innovation influences the firm's financial performance (Schneider and Spieth, 2013).

Strategic trajectories of business model change. The paper also enhances our understanding of the business model change/innovation process in the growth stage of the firm's life cycle, which has not been addressed previously neither by the literature on business model innovation nor the literature on high-growth firms. More specifically, two strategic trajectories of business model change were extracted from the case study.

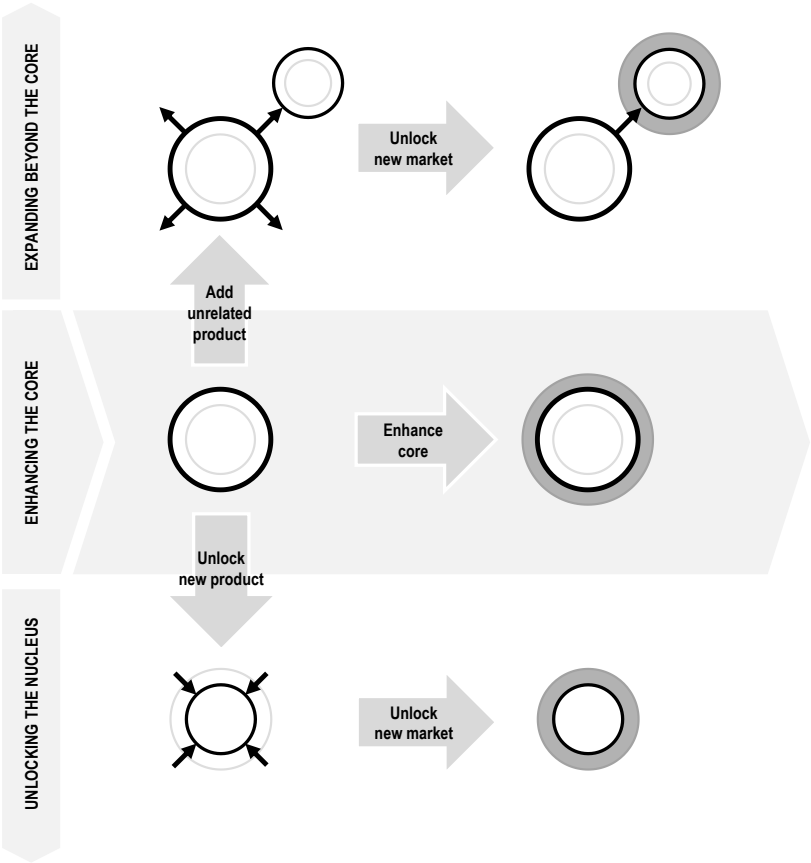
We now know that a firm can develop its activities (i) by enhancing the core business model and (ii) by unlocking the nucleus inside the core business model. Moreover, the firm can pursue both directions simultaneously.

The two uncovered strategic trajectories – "enhancing the core" and "unlocking the nucleus" – invite to consider the third theoretically possible option. This third trajectory can describe the firm's expansion into other businesses by adding unrelated activity sets with the resulting new product outputs for new markets. Such a trajectory would mark the firm's evolution towards becoming a diversified conglomerate and can be termed as "expanding beyond the core". All three trajectories are stylistically depicted in Figure 4.6. The case of Tesla Motors does not provide direct evidence for such a third trajectory, but allows logical inference.

The three trajectories identified in this paper fill the void of particular significance in regard to how growing ventures can plan successful strategies (Phelps, Adams, and Bessant, 2007) by suggesting three possible directions. Moreover, these trajectories exhibit ways out of the stability of business models during periods of rapid growth when efficiency and predictability are normally sought after to scale up operations (Doz and Kosonen, 2008, 2010).

The discovery of these trajectories can be compared to previous research on changes in the business model and activity systems, product market strategies for growing firms, and growth strategies that follows below.

Figure 4.6. Three strategic trajectories of business model change: (i) enhancing the core, (ii) unlocking the nucleus, and (iii) expanding beyond the core



Trajectory 1: Growth by enhancing the core. The enhancement of the core business model can be viewed as an "extension" of the business model by offering more and/or better lines of products/services (Cavalcante *et al.*, 2011; Linder and Cantrell, 2000), or as a process of "thickening" of the core element by new elaborating elements in the firm's activity system (Siggelkow, 2002). Enhancing the business model as a development trajectory with complimentary activities also echoes that of a "complementarities"

business model design theme (Zott and Amit, 2010), where the bundling of activities creates more value than conducting them separately (or not conducting them at all). Further, enhancing the core in a way that improves customer experience aligns with the customer-centric view of business model innovation and links it with marketing and design literatures (Demil *et al.*, 2015).

Trajectory 2: Growth by unlocking the nucleus. The idea of "unlocking the nucleus" of the core business model – as the commercialization of the activities already conducted within the present business model, to address new markets – has not been described in the literature. Finding and developing new product and market opportunities are generally known to characterize a growing firm (Cardozo *et al.*, 1993; Herbert and Deresky, 1987) and is not something entirely new, but the source of this new product's origin (i.e. within the already conducted activities), the potential effect on revenue growth, and the usefulness of this trajectory for the strategic management of the firm are rather astounding.

Unlocking the nucleus is important because it allows the firm to keep maintaining and enhancing the original business model. This in itself can be essential for several reasons. First, the firm may have acquired money from investors to execute a specific business model and has to deliver on the promise. Second, the entrepreneur may be willing to prove that his original vision can work. Third, management may need to buy time for further development by delivering short-term revenue. Fourth, the firm as a new player may need to legitimize itself by packaging and selling its technology as a component to leading industry incumbents rather than as a final product to end users. These are some of the possibilities that became apparent in the analysis of the Tesla Motors case.

Later, the firm can also transform the nucleus into the new core if it proves more lucrative, for example, because of its criticality to the industry and the consequential supreme profitability. Management can carefully

bypass organizational inertia typically associated with abrupt strategic change attempts by deliberately allowing the major change to slowly sneak into the organization.

A temporal sequence of pursuing certain product market strategies as the firm grows older was proposed and empirically tested by Cardozo *et al.* (1993). According to their study, growth follows "waves". The firm begins with growing sales of an existing product to existing customers, then acquires related customers for original and improved products, then adds distinctively new products for new unrelated markets, then begins to target another major product and market, and so forth. This paper extends this study by demonstrating that a "wave" of generating revenues from the addition of a new product (that came from unlocking the nucleus) can come and go, effectively facilitating the growth of the original product market combination.

Trajectory 3: Growth by expanding beyond the core. The strategy of expanding beyond the core business model has been tackled in a recent study of six new business development projects (Bertels, Koen, and Elsum, 2015). In this study, the authors found that this strategy is a lucrative choice in terms of new revenue generation. However, incorrect assumptions about the impact of addressing new products and markets on the other elements of the business model are likely to lead to failure. Therefore, "outside-the-core" projects need special handling – challenging those deeply embedded assumptions is not easy.

Limitations. The limitations of the present research are rather characteristic of the case study method. One of the most important limitations includes the lack of statistical generalizability; nevertheless, case studies do allow for analytical generalization following the logic of replication (Yin, 2009). Another limitation is the subjective interpretation of data at the stage of coding and analysis. However, exposure to this bias was limited by the development and consistent use of conceptually clear and non-overlapping coding categories (Guthrie *et al.*, 2004).

Further, relying on secondary data was somewhat unorthodox for "normal" case studies. However, given the phenomenon of interest (high-level changes in activity sets) and the statutory reporting obligations established for public firms, the data should be considered sufficient for the purpose of the study (see Chapter 3). Besides, it is not an uncommon practice to rely on secondary data in business model innovation research (see e.g. Amit and Zott, 2001; Demil and Lecocq, 2010; Park, 2011). For extra assurance, media interviews with the CEO Elon Musk were examined. This check did not provide additional, significant facts compared to what was already known from the official reports but was useful in understanding some of the motivations.

4.6. IMPLICATIONS

This paper has the following implications for future research, management practice, and teaching.

First, the refined activity-based view of the business model allows researchers to explore such avenues as the link between specific temporal patterns of change and particular performance indicators as well as the interrelationships of multiple activity sets within one business model and their impact on performance. The view developed essentially links the disciplines of strategic management and financial accounting. Further, the three identified strategic trajectories of business model change invite testing on larger samples as regards their implications for firm performance.

Second, managers can benefit from a better understanding of possible directions for new revenue generation, especially when it comes to looking inside the core business model and unlocking revenues from the activities the firm is already conducting. Of no less significance is the understanding of major cost and revenue drivers associated with particular business model choices as regards addition and removal of activities, activity sets and

corresponding value propositions. This approach can also be useful in analyzing competitive moves of industry peers.

Third, in teaching and consulting practice, students and practitioners can benefit from visual and analytically clear representations of business model changes as well as a selection of relevant performance indicators that are developed and presented in this paper. There has been a lot of talk about business model innovation in the literature and the public domain, and this paper is an attempt to do away with some of the murkiness of the concepts surrounding the phenomenon.

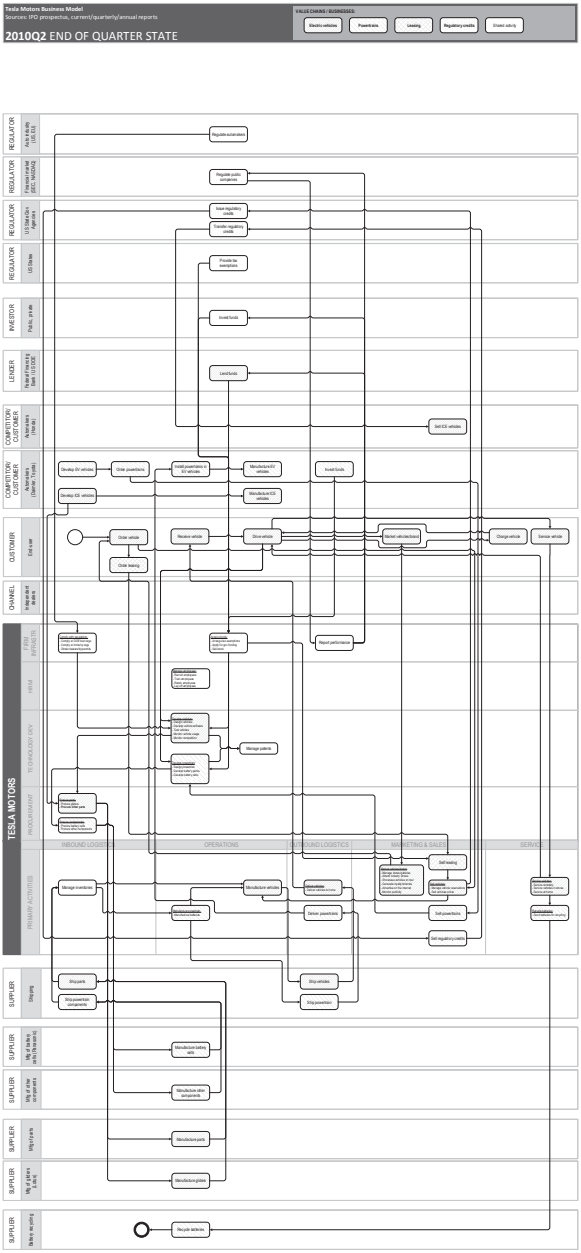
4.7. APPENDIX: CHANGES IN THE BUSINESS MODEL OF TESLA MOTORS

This appendix provides a detailed account of changes in the sub-activities, activities and activity sets of Tesla Motors with the help of 18 diagrams created on the basis of qualitative content analysis of the data included in 76 reports (3,671 pages) that were filed by the company with the US SEC in the period between Q2 2010 and Q3 2014.

The visual organization of the diagrams largely follows the guidelines of the industry standard notation for business process modeling (BPMN), with some modifications.

The size of the diagrams has been reduced from the original A0-sized posters to fit the format of this document. The starting point is a hollow circle ("customer orders vehicle") and the ending point is a circle with a slightly bolder outline ("supplier recycles batteries"). The actors are depicted on the left side of each diagram. These include Tesla Motors as the focal firm as well as its key suppliers, channels, customers, competitors, financial partners, and regulators. Each actor conducts certain (sub-)activities that are represented as boxes in the central part of the diagram. The arrows connecting boxes demonstrate the sequence of these (sub-)activities. The sub-activities of the focal firm are further organized into larger activities, depicted as "swimlanes" in the diagram. To simplify the diagram, the activities of other actors are not grouped, and only the activities relevant to the focal firm's business model are exhibited. Each of Tesla Motors' activity sets is shaded with a different pattern; the legend is provided in the top right corner of each diagram.

Changes in the content (what is being done), governance (who is doing it) and sequence (in what order) of activities are highlighted and also summarized in textual form at the top of each diagram.


Tesla Motors Business Model
Sources: IPO prospectus, current/quarterly/annual reports
2010Q2 END OF QUARTER STATE
VALUE CHAINS / BUSINESSES:
Electric vehicles
Powertrains
Leasing...
Regulatory credits
Shared activity
REGULATOR
Agency: US EPA
Regulate emissions
REGULATOR
Agency: CARB (EU, NL, NZ, CA)
Regulate public complaints
REGULATOR
Organization: Utilities
Issue regulatory credits
Transfer regulatory credits
REGULATOR
US Govm
Provide tax exemptions
INVESTOR
Public private
Invest funds
LENDER
Bank / FINANCE / Investment BANK
Lend funds
COMPETITOR/ CUSTOMER
Industry: Utilities
Sell ICE vehicles
COMPETITOR/ CUSTOMER
Industry: Tech (Internet Tech)
Develop EV vehicles
Grow powertrains
Install powertrains in ICE vehicles
Manufacture ICE vehicles
Invest funds
Develop ICE vehicles
Manufacture ICE vehicles
CUSTOMER
End-user
Order vehicle
Receive vehicle
Drive vehicle
Operate vehicle (maintenance)
Manage vehicle
Service vehicle
Order warrty
CHANNEL
Business or Retail Sales
TESLA MOTORS
FIRM INFRASTR.
Report performance
HRM
TECHNOLOGY DEV
Manage patents
PROCUREMENT
INBOUND LOGISTICS
OPERATIONS
OUTBOUND LOGISTICS
MARKETING & SALES
SERVICE
PRIMARY ACTIVITIES
Sell leasing
Manage inventories
Manufacture vehicles
Service powertrains
Sell power trains
Sell regulatory credits
SUPPLIER
Shipping
Ship parts
Ship vehicles
Ship powertrains
SUPPLIER
Mfg of batts + Mfg of batts
Manufacture battery cells
SUPPLIER
Mfg of other components
Manufacture other components
SUPPLIER
Mfg of parts
Manufacture parts
SUPPLIER
Mfg of glass + Mfg of glass
Manufacture glass
SUPPLIER
Battery recycling
Ship pulls batteries

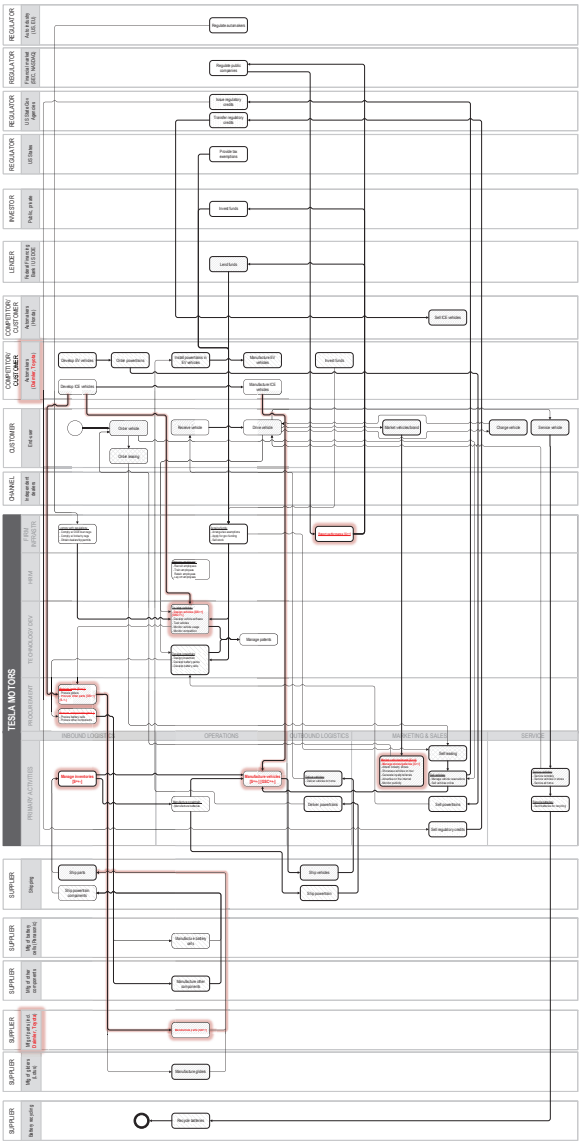
Tesla Motors Business Model
Sources: IPO prospectus, current/quarterly/annual reports

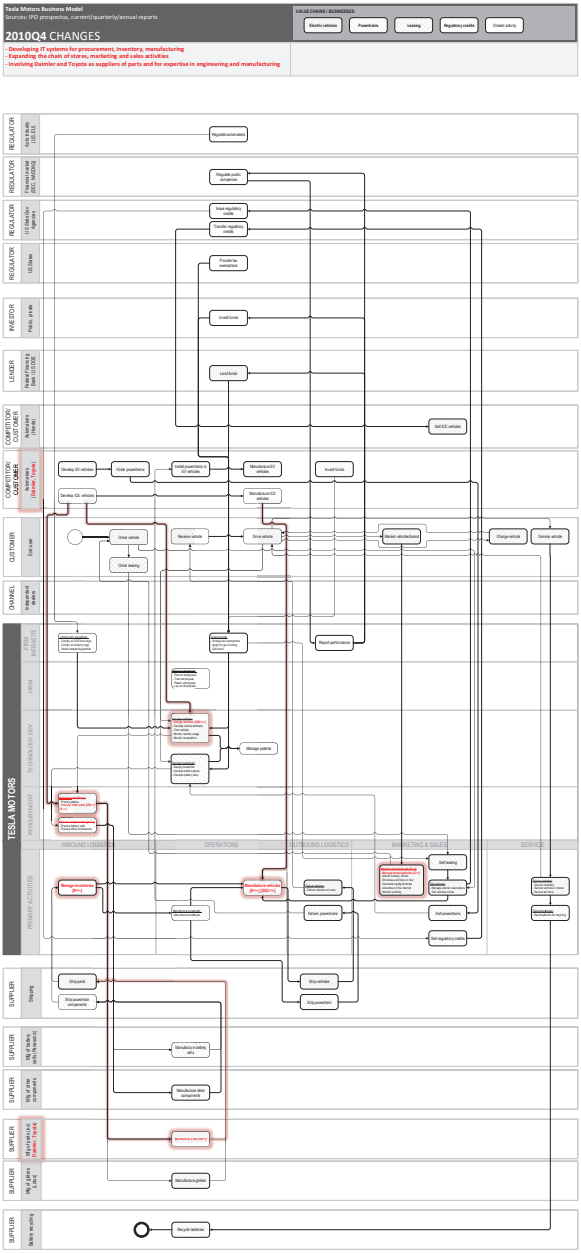
VALUE CHAINS / BUSINESSES:
Electric vehicles | Powertrains | Leasing... | Regulatory credits | Shared activity

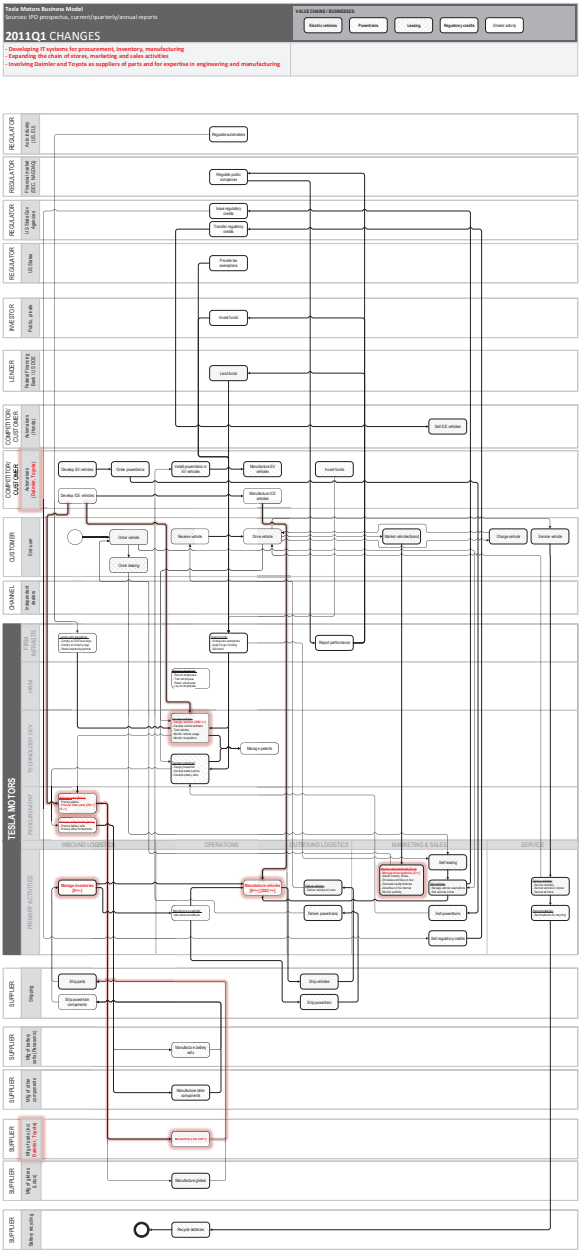
2010Q3 CHANGES

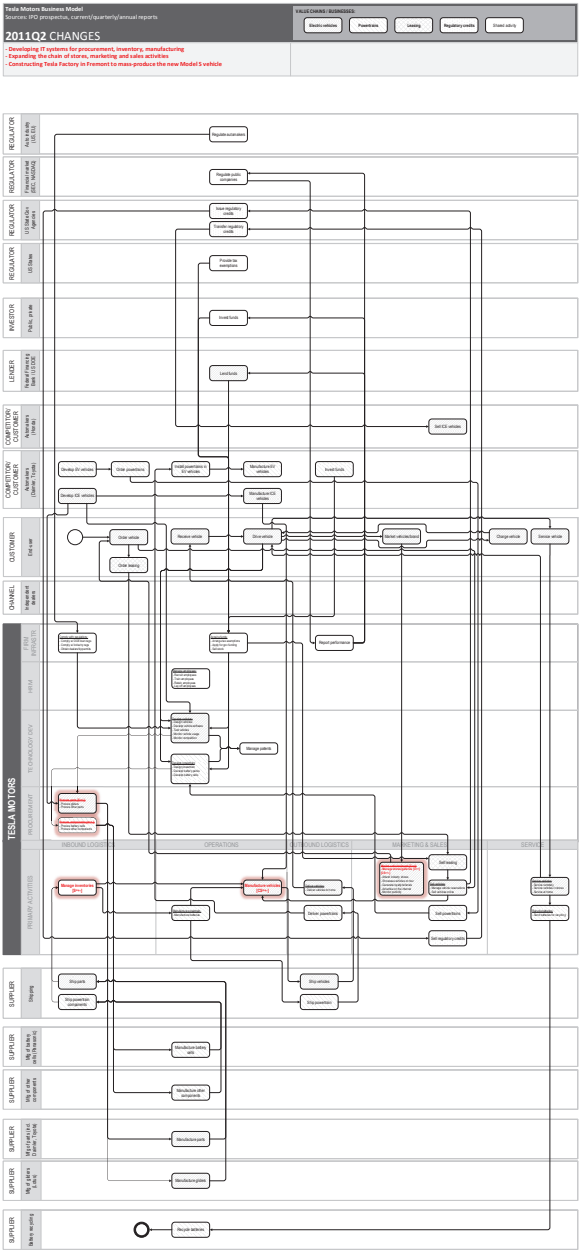
- Developing IT systems for procurement, inventory, manufacturing
- Expanding the chain of stores, marketing and sales activities
- Involving Daimler and Toyota as suppliers of parts and for expertise in engineering and manufacturing

- Started new reporting activities as a public company




Tesla Motors Business Model
Sources: IPO prospectus, current/quarterly/annual reports
2010Q4 CHANGES
- Developing IT systems for procurement, inventory, manufacturing
- Expanding the chain of stores, marketing and sales activities
- Involving Daimler and Toyota as suppliers of parts and for expertise in engineering and manufacturing
VALUE CHAINS / BUSINESSES:
Electric vehicles
Powertrains
Leasing...
Regulatory credits
Shared activity
REGULATOR
Auto Safety (US, EU)
Regulate accessories
REGULATOR
Fuel Economy (EU, NHTSA)
Regulate public complaints
REGULATOR
Urban Access
Issue regulatory credits
Transfer regulatory credits
REGULATOR
US Gov
Provide tax exemptions
INVESTOR
Public private
Invest funds
LENDER
Bank / FINANCE SERVICES
Lend funds
COMPETITOR/ CUSTOMER
Internal Services
Sell ICE vehicles
COMPETITOR/ CUSTOMER
Other Tesla Divisions (Tesla Energy)
Develop EV vehicles
Drive powertrains
Install powertrains in ICV vehicles
Manufacture ICV vehicles
Invest funds
Develop ICE vehicles
Manufacture ICE vehicles
CUSTOMER
End-user
Drive vehicle
Drive swapping
Maintain vehicle
Drive vehicle
Deliver vehicle/charge
Storage vehicle
Service vehicle
CHANNEL
Sales and Service Network
FIRM INFRASTR.
Report performance
HRM
Manage employees
TECHNOLOGY DEV
Manage vehicles
Manage patents
PROCUREMENT
INBOUND LOGISTICS
OPERATIONS
OUTBOUND LOGISTICS
MARKETING & SALES
SERVICE
PRIMARY ACTIVITIES
Manage inventories (JIT)
Manufacture vehicles (JIT+ CONCH)
Sell leasing
Sell power trains
Sell regulatory credits
SUPPLIER
Shipping
Ship parts
Ship powertrain components
Ship vehicles
Ship powertrains
SUPPLIER
Mfg of tools + dies/molds
Manufacture battery cells
SUPPLIER
Mfg of other components
Manufacture other components
SUPPLIER
Mfg of electric powertrains
Manufacture powertrains
SUPPLIER
Mfg of glass + plastics
Manufacture glass
SUPPLIER
Mature recycling
Recycle batteries


Tesla Motors Business Model
Sources: IPO prospectus, current/quarterly/annual reports
2011Q1 CHANGES
- Developing IT systems for procurement, inventory, manufacturing
- Expanding the chain of stores, marketing and sales activities
- Involving Daimler and Toyota as suppliers of parts and for expertise in engineering and manufacturing
VALUE CHAINS / BUSINESSES:
Electric vehicles
Powertrains
Leasing...
Regulatory credits
Shared activity
REGULATOR
Auto Safety (US EU)
Regulate automakers
REGULATOR
Urban Mass Transit (EU, NA/MX)
Regulate public companies
REGULATOR
US States
Issue regulatory credits
Transfer regulatory credits
REGULATOR
US States
Provide tax exemptions
INVESTOR
Public private
Invest funds
LENDER
Bank / FINANCE INSTITUTIONS
Lend funds
COMPETITOR/ CUSTOMER
Internal (Tesla)
Sell ICE vehicles
COMPETITOR/ CUSTOMER
Other Tesla (Daimler, Toyota)
Develop EV vehicles
Drive powertrains
Install powertrains in ICV vehicles
Manufacture EV vehicles
Invest funds
Develop ICE vehicles
Manufacture ICE vehicles
CUSTOMER
End user
Drive vehicle
Drive company
Maintain vehicle
Drive vehicle
Operate vehicle (charge)
Design vehicle
Service vehicle
CHANNEL
Sales and Service
TESLA MOTORS
FIRM INFRASTR.
Report performance
HRM
Manage employees
TECHNOLOGY DEV
Manage patents
PROCUREMENT
PRIMARY ACTIVITIES
INBOUND LOGISTICS
OPERATIONS
OUTBOUND LOGISTICS
MARKETING & SALES
SERVICE
Sell leasing
Manage inventory (JIT)
Manufacture vehicles (JIT+CUSTOM)
Sell power trains
Sell regulatory credits
SUPPLIER
Shipping
Ship parts
Ship powertrain components
Ship vehicles
Ship powertrains
SUPPLIER
Mfg of batteries and cells
Manufacture battery cells
SUPPLIER
Mfg of other components
Manufacture other components
SUPPLIER
Mfg of electric powertrains
Manufacture electric powertrains
SUPPLIER
Mfg of glass and plastics
Manufacture glass
SUPPLIER
Battery recycling
Ship pack batteries


Tesla Motors Business Model
Sources: IPO prospectus, current/quarterly/annual reports
2011Q2 CHANGES
- Developing IT systems for procurement, inventory, manufacturing
- Expanding the chain of stores, marketing and sales activities
- Constructing Tesla Factory in Fremont to mass-produce the new Model S vehicle
VALUE CHAINS / BUSINESSES:
Electric vehicles
Powertrains
Leasing...
Regulatory credits
Shared activity
REGULATOR
Auto Sales (US & EU)
REGULATOR
Public Relations (PR) / Marketing
REGULATOR
US Agencies / Congress
REGULATOR
US States
INVESTOR
Public private
LENDER
Bank / FINANCE / Investment
COMPETITOR/ CUSTOMER
Incumbents (Others)
COMPETITOR/ CUSTOMER
Other Tesla (Daimler Tesla)
CUSTOMER
End-user
CHANNEL
Resellers & Retailers
TESLA MOTORS
FIRM INFRASTR.
HRM
TECHNOLOGY DEV
PROCUREMENT
PRIMARY ACTIVITIES
INBOUND LOGISTICS
OPERATIONS
OUTBOUND LOGISTICS
MARKETING & SALES
SERVICE
SUPPLIER
Shipping
SUPPLIER
Mfg. of batteries (Panasonic)
SUPPLIER
Mfg. of other components
SUPPLIER
Mfg. of parts (Lotus, Daimler)
SUPPLIER
Mfg. of glass
SUPPLIER
Battery recycling
Regulate accessories
Regulate public complaints
Issue regulatory credits
Transfer regulatory credits
Provide tax exemptions
Invest funds
Lend funds
Sell ICE vehicles
Develop EV vehicles
Grow powertrains
Install powertrains in ICE vehicles
Manufacture ICE vehicles
Invest funds
Develop ICE vehicles
Manufacture ICE vehicles
Order vehicle
Receive vehicle
Drive vehicle
Operate vehicle (charge)
Manage vehicle
Service vehicle
Order waiting
Report performance
Manage inventory (JIT)
Manage production
Manufacture vehicles (Q1 Prod.)
Sell leasing
Sell power facility
Service powertrains
Sell regulatory credits
Ship parts
Ship powertrain components
Ship vehicles
Ship powertrain
Manufacture battery packs
Manufacture other components
Manufacture parts
Manufacture glass
Recycle batteries

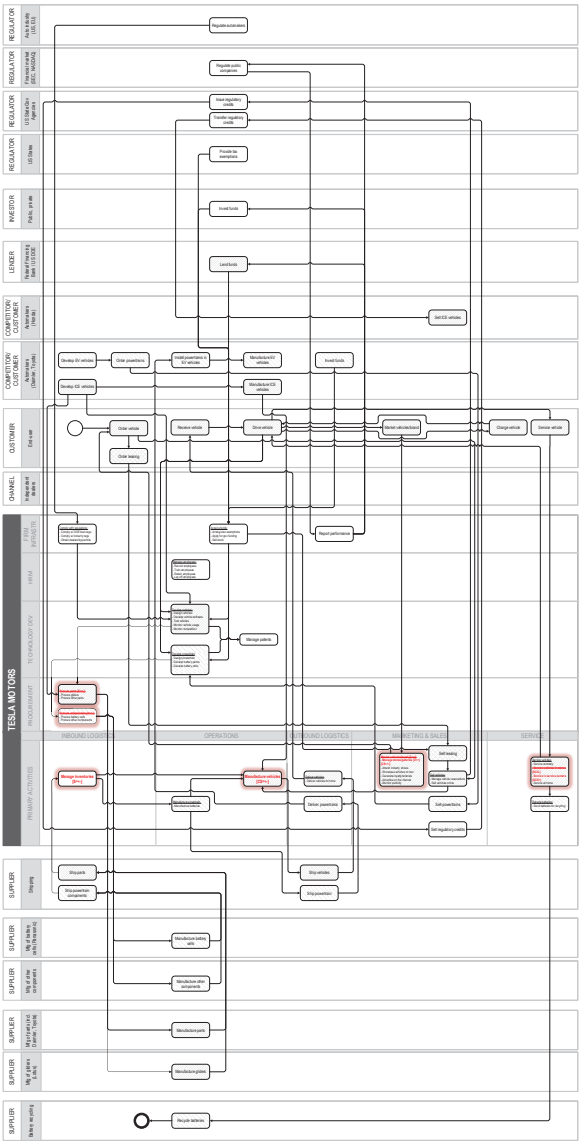
Tesla Motors Business Model
Sources: IPO prospectus, current/quarterly/annual reports

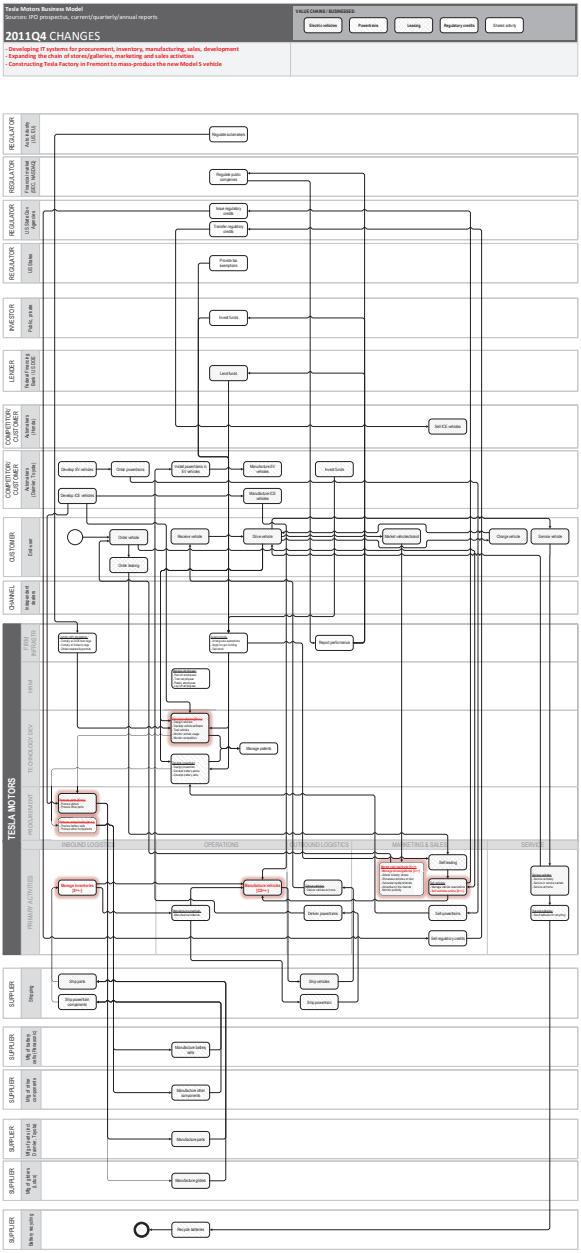
VALUE CHAINS / BUSINESSES:
Electric vehicles | Powertrains | Leasing... | Regulatory credits | Shared activity

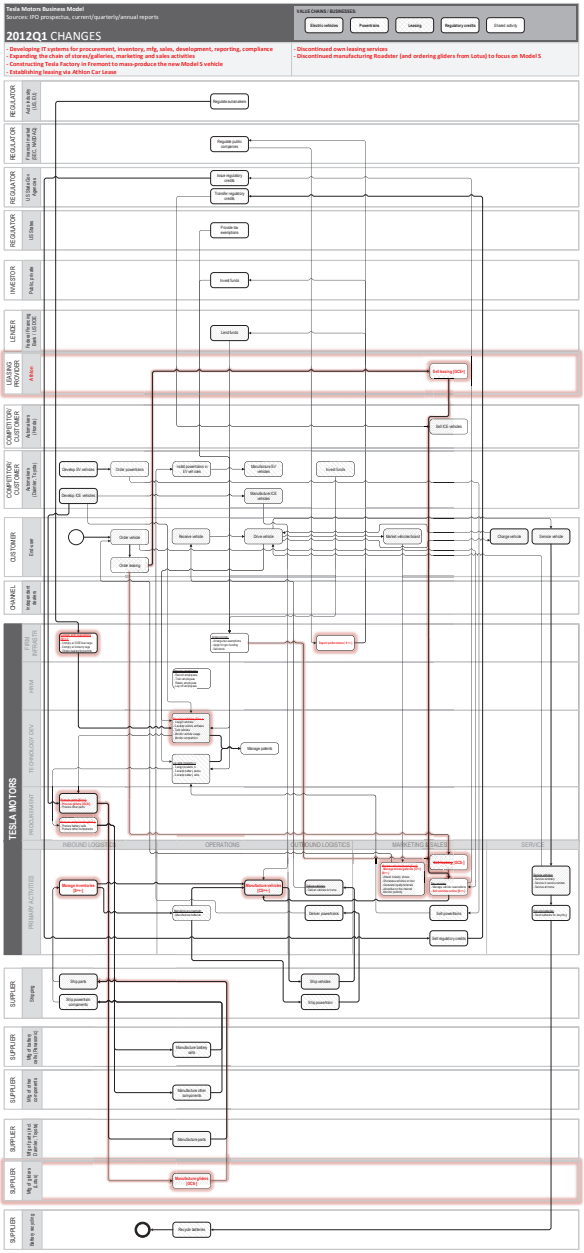
2011Q3 CHANGES

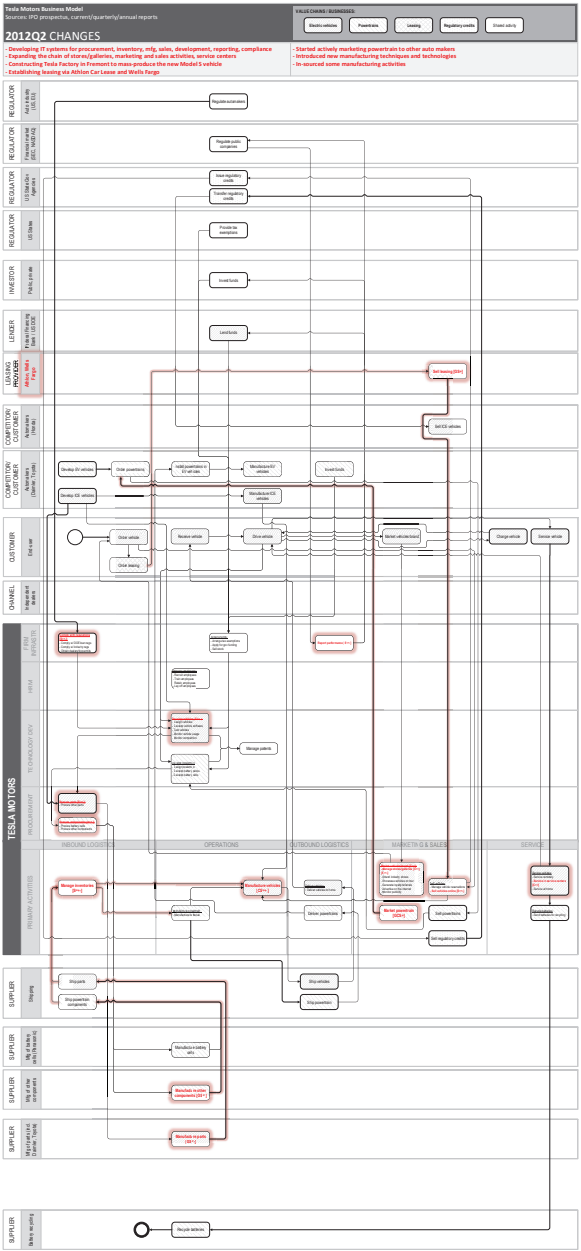
- Developing IT systems for procurement, inventory, manufacturing
- Expanding the chain of stores, marketing and sales activities
- Constructing Tesla factory in Fremont to mass-produce the new Model S vehicle

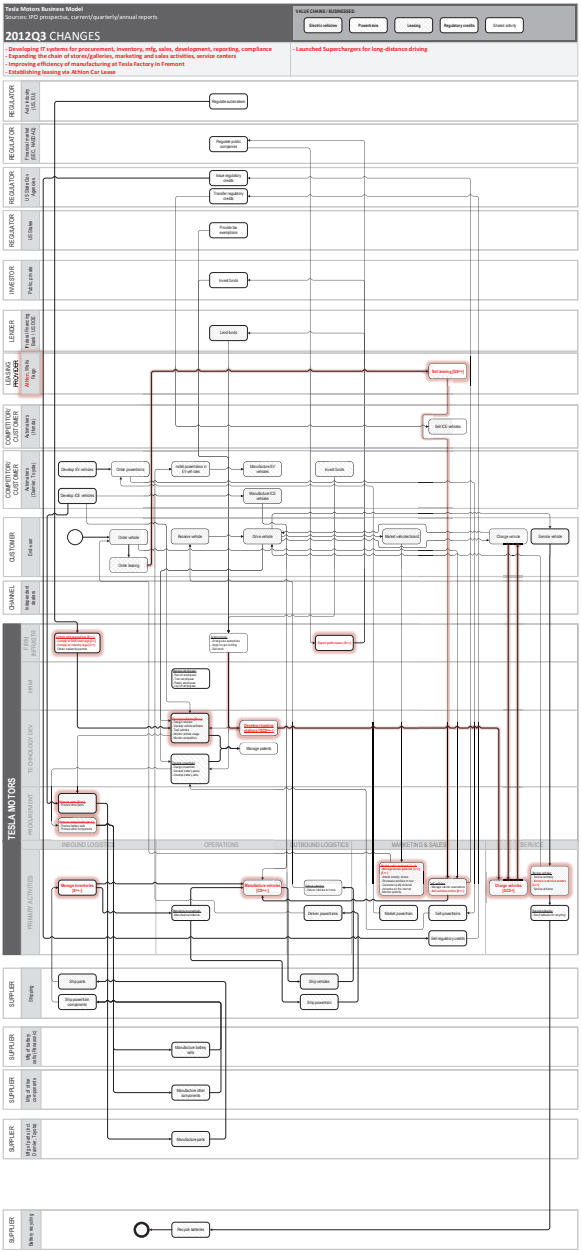
- Introduced new concepts of service center and store/gallery, converted some stores into service centers

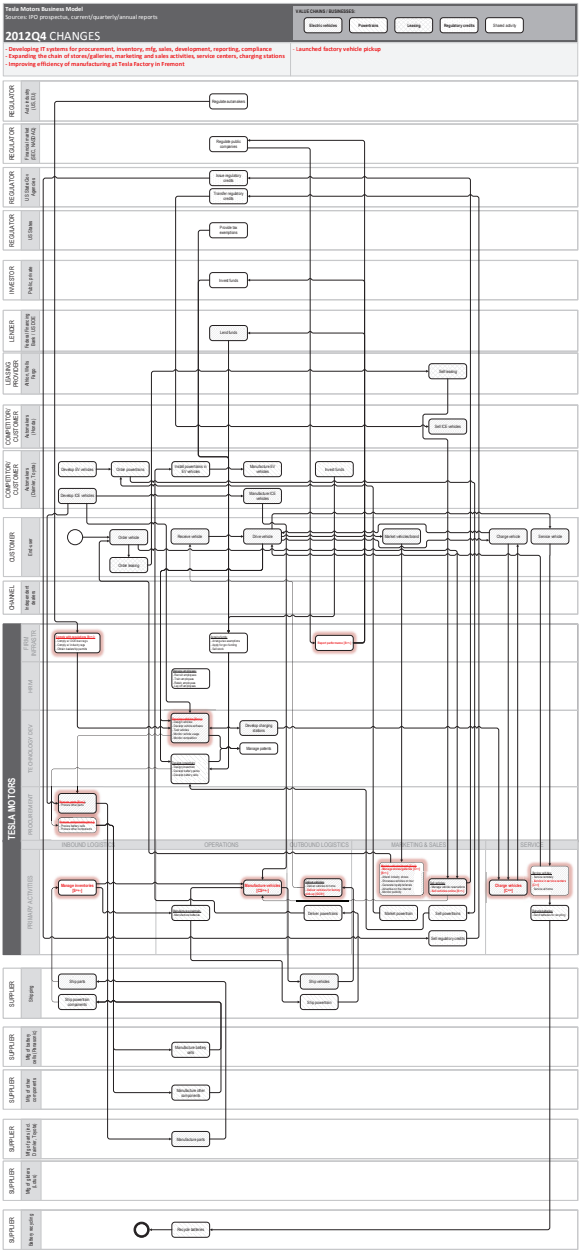


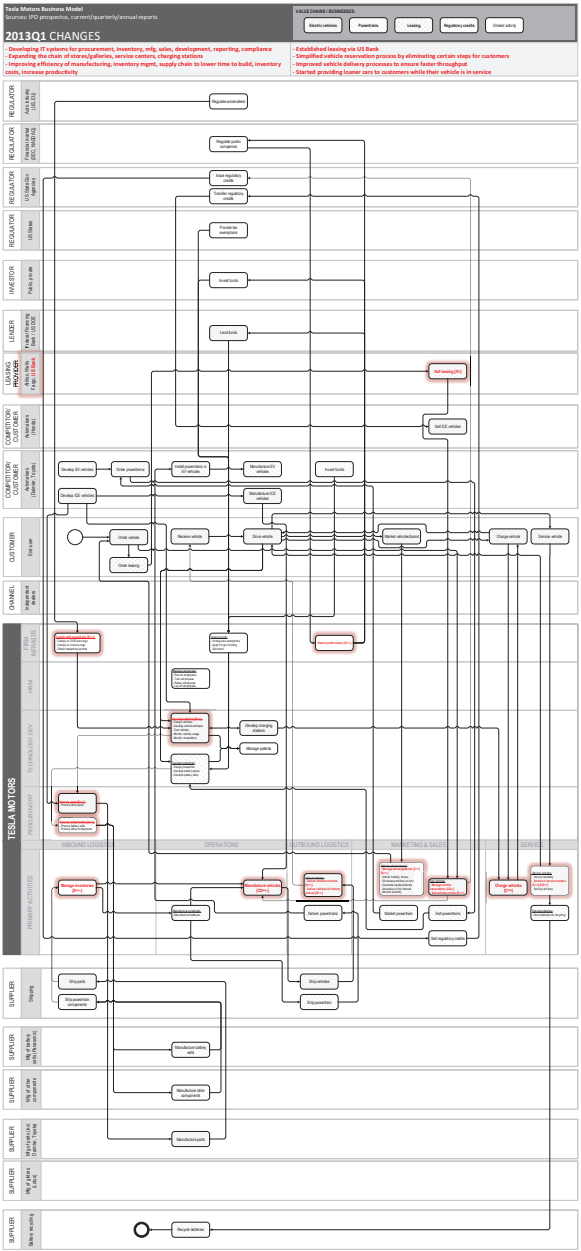

Tesla Motors Business Model
Sources: IPO prospectus, current/quarterly/annual reports
2011Q4 CHANGES
- Developing IT systems for procurement, inventory, manufacturing, sales, development
- Expanding the chain of stores/galleries, marketing and sales activities
- Constructing Tesla Factory in Fremont to mass-produce the new Model S vehicle
VALUE CHAINS / BUSINESSES:
Electric vehicles
Powertrains
Leasing...
Regulatory credits
Shared activity
REGULATOR
Regulate accelerators
REGULATOR
Regulate public complaints
REGULATOR
Issue regulatory credits
Transfer regulatory credits
REGULATOR
Provide tax exemptions
INVESTOR
Invest funds
LENDER
Lend funds
COMPETITOR/ CUSTOMER
Sell ICE vehicles
COMPETITOR/ CUSTOMER
Develop EV vehicles
Grow powertrains
Install powertrains in ICE vehicles
Manufacture ICE vehicles
Invest funds
Develop ICE vehicles
Manufacture ICE vehicles
CUSTOMER
Order vehicle
Receive vehicle
Drive vehicle
Operate vehicle/charge
Manage vehicle
Service vehicle
Order leasing
CHANNEL
TESLA MOTORS
FIRM INFRASTR.
Report performance
HRM
TECHNOLOGY DEV
Manage patents
PROCUREMENT
PRIMARY ACTIVITIES
INBOUND LOGISTICS
OPERATIONS
OUTBOUND LOGISTICS
MARKETING & SALES
SERVICE
Sell leasing
Manage inventories (JIT)
Manufacture vehicles (CKD)
Service powertrains
Sell powertrains
Sell regulatory credits
SUPPLIER
Ship parts
Ship powertrain components
Ship vehicles
Ship powertrain
SUPPLIER
Mfg of batts + assembly
Manufacture battery cells
SUPPLIER
Mfg of other components
Manufacture other components
SUPPLIER
Mfg of parts
Manufacture parts
SUPPLIER
Mfg of glass + assembly
Manufacture glass
SUPPLIER
Mine recycle
Recycle batteries


Tesla Motors Business Model
Sources: IPO prospectus, current/quarterly/annual reports
VALUE CHAINS / BUSINESSES:
Electric vehicles
Powertrains
Leasing...
Regulatory credits
Shared activity
2012Q1 CHANGES
- Developing IT systems for procurement, inventory, mfg, sales, development, reporting, compliance
- Expanding the chain of stores/galleries, marketing and sales activities
- Constructing Tesla Factory in Fremont to mass-produce the new Model S vehicle
- Establishing leasing via Athlon Car Lease
- Discontinued own leasing services
- Discontinued manufacturing Roadster (and ordering gliders from Lotus) to focus on Model S
REGULATOR
Regulate social issues
REGULATOR
Regulate public competitors
REGULATOR
Issue regulatory credits
Transfer regulatory credits
REGULATOR
Provide tax exemptions
INVESTOR
Invest funds
LENDER
Lend funds
LEASING PROVIDER
Athlon
Sell leasing (2Q12)
COMPETITOR/ CUSTOMER
Sell ICE vehicles
COMPETITOR/ CUSTOMER
Develop EV vehicles
Order powertrains
Install powertrains in EV self-clads
Manufacture EV vehicles
Invest funds
Develop ICE vehicles
Manufacture ICE vehicles
CUSTOMER
End-user
Order vehicle
Order leasing
Receive vehicle
Drive vehicle
Return vehicle (lease)
Charge vehicle
Service vehicle
CHANNEL
TESLA MOTORS
FIRM INFRASTR.
HRM
TECHNOLOGY DEV
PROCUREMENT
PRIMARY ACTIVITIES
INBOUND LOGISTICS
OPERATIONS
OUTBOUND LOGISTICS
MARKETING & SALES
SERVICE
Manage powertrains (2Q12)
Manage patents
Manufacture vehicles (2Q12)
Sell powertrains
Sell regulatory credits
SUPPLIER
Ship parts
Ship powertrain components
Ship vehicles
Ship powertrains
Manufacture battery cells
Manufacture other components
Manufacture parts
Manufacture gliders (2Q12)
Ship pole batteries


Tesla Motors Business Model
Sources: IPO prospectus, current/quarterly/annual reports
2012Q2 CHANGES
- Developing IT systems for procurement, inventory, mfg, sales, development, reporting, compliance
- Expanding the chain of stores/galleries, marketing and sales activities, service centers
- Constructing Tesla Factory in Fremont to mass-produce the new Model S vehicle
- Establishing leasing via Affilion Car Lease and Wells Fargo
- Started actively marketing powertrain to other auto makers
- Introduced new manufacturing techniques and technologies
- In-sourced some manufacturing activities
VALUE CHAINS / BUSINESSES:
Electric vehicles
Powertrains
Leasing...
Regulatory credits
Shared activity
REGULATOR
Regulate social issues
REGULATOR
Regulate public competitiveness
REGULATOR
Issue regulatory credits
Transfer regulatory credits
REGULATOR
Provide tax exemptions
INVESTOR
Invest funds
LENDER
Lend funds
LEASING PROVIDER
Sell leasing (EVs)
COMPETITOR/ CUSTOMER
Sell ICE vehicles
COMPETITOR/ CUSTOMER
Develop EV vehicles
Drive powertrains
Install powertrains in EV self-clads
Manufacture EV vehicles
Invest funds
Develop ICE vehicles
Manufacture ICE vehicles
CUSTOMER
End-user
Order vehicle
Order leasing
Receive vehicle
Drive vehicle
Report vehicle issues
Manage vehicle
Service vehicle
CHANNEL
TESLA MOTORS
FIRM INFRASTR.
HRM
TECHNOLOGY DEV
PROCUREMENT
INBOUND LOGISTICS
OPERATIONS
OUTBOUND LOGISTICS
MARKETING & SALES
SERVICE
PRIMARY ACTIVITIES
Manage inventory (JIT?)
Manufacture vehicles (JIT?)
Manufacture powertrains
Deliver vehicles to stores
Deliver powertrains
Market powertrain (OEM?)
Sell powertrains
Sell regulatory credits
SUPPLIER
Shipping
Ship parts
Ship powertrain components
Ship vehicles
Ship powertrains
SUPPLIER
Mfg. of batts & other components
Manufacture battery cells
SUPPLIER
Mfg. of other components
Manufacture other components (JIT?)
SUPPLIER
Mfg. of parts & other components
Manufacture non-parts (JIT?)
SUPPLIER
Mfg. of batteries
Ship pack batteries


Tesla Motors Business Model
Sources: IPO prospectus, current/quarterly/annual reports
VALUE CHAINS / BUSINESSES:
Electric vehicles
Powertrains
Leasing...
Regulatory credits
Shared activity
2012Q3 CHANGES
- Developing IT systems for procurement, inventory, mfg, sales, development, reporting, compliance
- Expanding the chain of stores/galleries, marketing and sales activities, service centers
- Improving efficiency of manufacturing at Tesla Factory in Fremont
- Establishing leasing via Athlon Car Lease
- Launched Superchargers for long-distance driving
REGULATOR
REGULATOR
REGULATOR
REGULATOR
INVESTOR
LENDER
LEASING PROVIDER
COMPETITOR/ CUSTOMER
COMPETITOR/ CUSTOMER
CUSTOMER
CHANNEL
TESLA MOTORS
FIRM INFRASTR.
HRM
TECHNOLOGY DEV
PROCUREMENT
PRIMARY ACTIVITIES
INBOUND LOGISTICS
OPERATIONS
OUTBOUND LOGISTICS
MARKETING & SALES
SERVICE
SUPPLIER
SUPPLIER
SUPPLIER
SUPPLIER
SUPPLIER


Tesla Motors Business Model
Sources: IPO prospectus, current/quarterly/annual reports
2012Q4 CHANGES
- Developing IT systems for procurement, inventory, mfg, sales, development, reporting, compliance
- Expanding the chain of stores/galleries, marketing and sales activities, service centers, charging stations
- Improving efficiency of manufacturing at Tesla Factory in Fremont
- Launched factory vehicle pickup
VALUE CHAINS / BUSINESSES:
Electric vehicles
Powertrains
Leasing...
Regulatory credits
Shared activity
REGULATOR
REGULATOR
REGULATOR
REGULATOR
INVESTOR
LENDER
LEASING PROVIDER
COMPETITOR/ CUSTOMER
COMPETITOR/ CUSTOMER
CUSTOMER
CHANNEL
TESLA MOTORS
FIRM INFRASTR.
HRM
TECHNOLOGY DEV
PROCUREMENT
INBOUND LOGISTICS
OPERATIONS
OUTBOUND LOGISTICS
MARKETING & SALES
SERVICE
PRIMARY ACTIVITIES
SUPPLIER
SUPPLIER
SUPPLIER
SUPPLIER
SUPPLIER
SUPPLIER


Tesla Motors Business Model
Sources: IPO prospectus, current/quarterly/annual reports
VALUE CHAINS / BUSINESSES:
Electric vehicles
Powertrains
Leasing...
Regulatory credits
Shared activity
2013Q1 CHANGES
- Developing IT systems for procurement, inventory, mfg, sales, development, reporting, compliance
- Expanding the chain of stores/galleries, service centers, charging stations
- Improving efficiency of manufacturing, inventory mgmt, supply chain to lower time to build, inventory costs, increase productivity
- Established leasing via US Bank
- Simplified vehicle reservation process by eliminating certain steps for customers
- Improved vehicle delivery processes to ensure faster throughput
- Started providing loaner cars to customers while their vehicle is in service
REGULATOR
Regulate social issues
REGULATOR
Regulate public companies
REGULATOR
Issue regulatory credits
Transfer regulatory credits
REGULATOR
Provide tax exemptions
INVESTOR
Invest funds
LENDER
Lend funds
LEASING PROVIDER
Sell leasing (2Q)
COMPETITOR/ CUSTOMER
Sell ICE vehicles
COMPETITOR/ CUSTOMER
Develop EV vehicles
Grow powertrains
Install powertrains in ICV vehicles
Manufacture ICV vehicles
Invest funds
Develop ICE vehicles
Manufacture ICE vehicles
CUSTOMER
Order vehicle
Receive vehicle
Drive vehicle
Service vehicle/charge
Change vehicle
Service vehicle
Order leasing
CHANNEL
TESLA MOTORS
FIRM INFRASTR.
HRM
TECHNOLOGY DEV
PROCUREMENT
INBOUND LOGISTICS
OPERATIONS
OUTBOUND LOGISTICS
MARKETING & SALES
SERVICE
PRIMARY ACTIVITIES
Manage inventory (Inv.)
Manufacture vehicles (Oper.)
Sell vehicles
Change vehicles (Inv.)
Service vehicles
Sell powertrains
Sell power trains
Sell regulatory credits
SUPPLIER
Shipping
Ship parts
Ship powertrain components
Ship vehicles
Ship powertrain
SUPPLIER
Mfg. of batts + components
Manufacture battery cells
SUPPLIER
Mfg. of other components
Manufacture other components
SUPPLIER
Mfg of parts + components
Manufacture parts
SUPPLIER
Mfg of batts + parts
SUPPLIER
Mature recycling
Recycle batteries

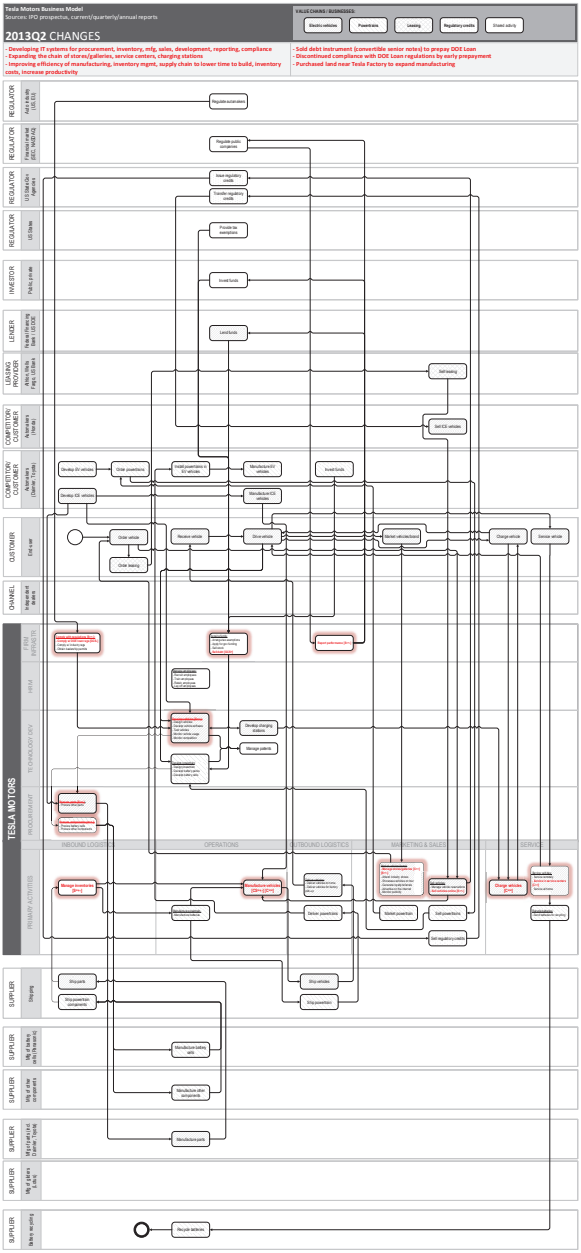
Tesla Motors Business Model
Sources: IPO prospectus, current/quarterly/annual reports

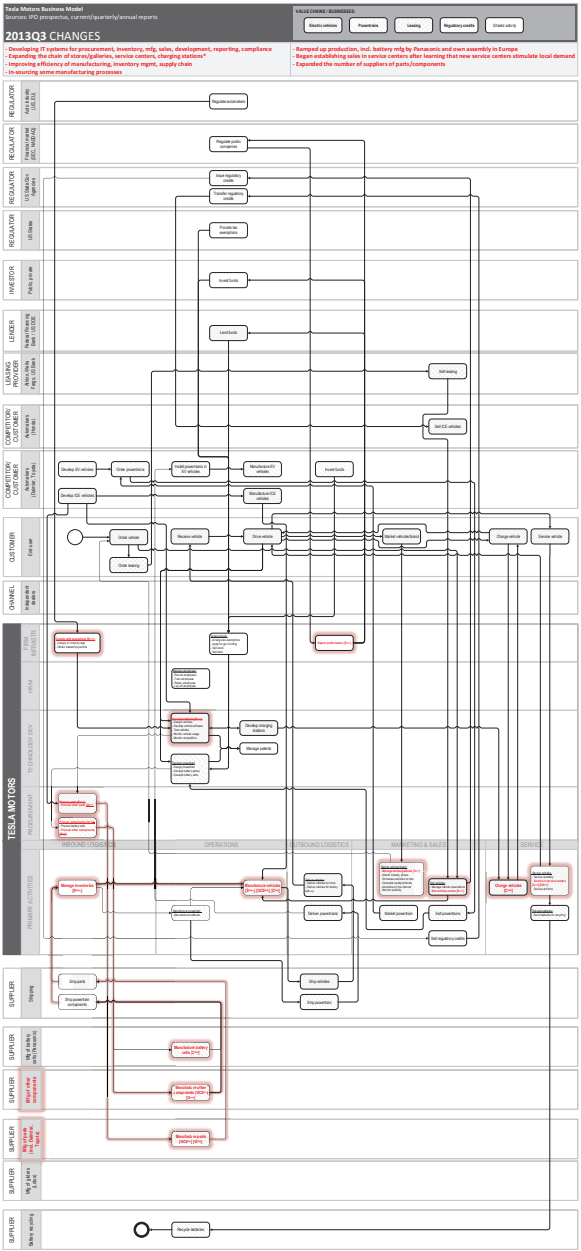
2013Q2 CHANGES

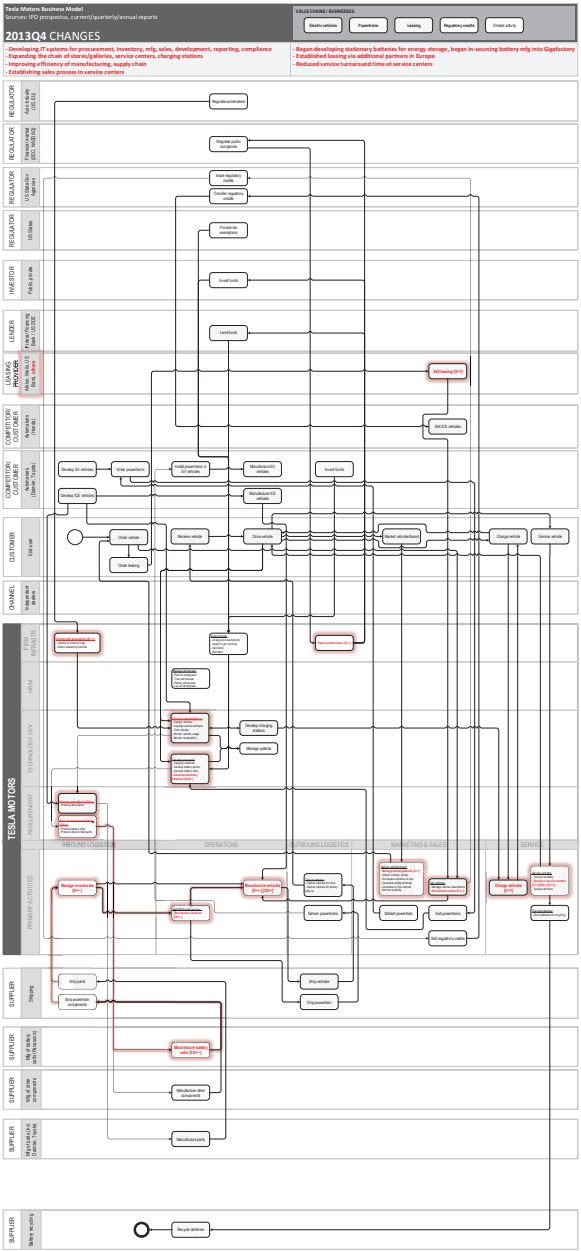
VALUE CHAINS / BUSINESSES:
Electric vehicles
Powertrains
Leasing
Regulatory credits
Shared activity

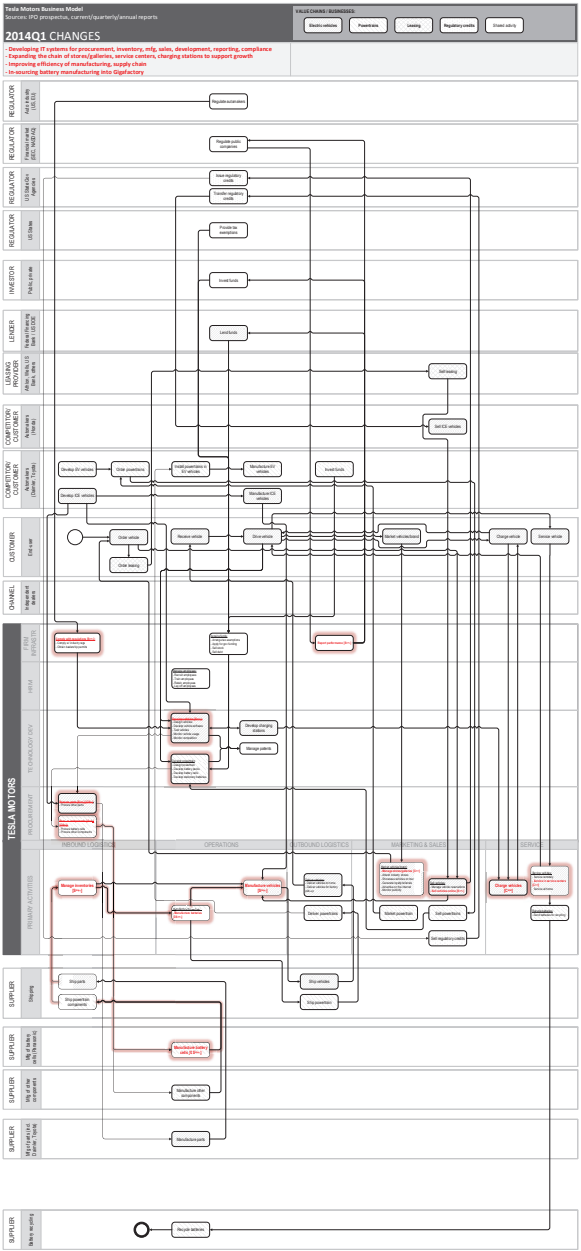
- Developing IT systems for procurement, inventory, mfg, sales, development, reporting, compliance
- Expanding the chain of stores/galleries, service centers, charging stations
- Improving efficiency of manufacturing, inventory mgmt, supply chain to lower time to build, inventory costs, increase productivity

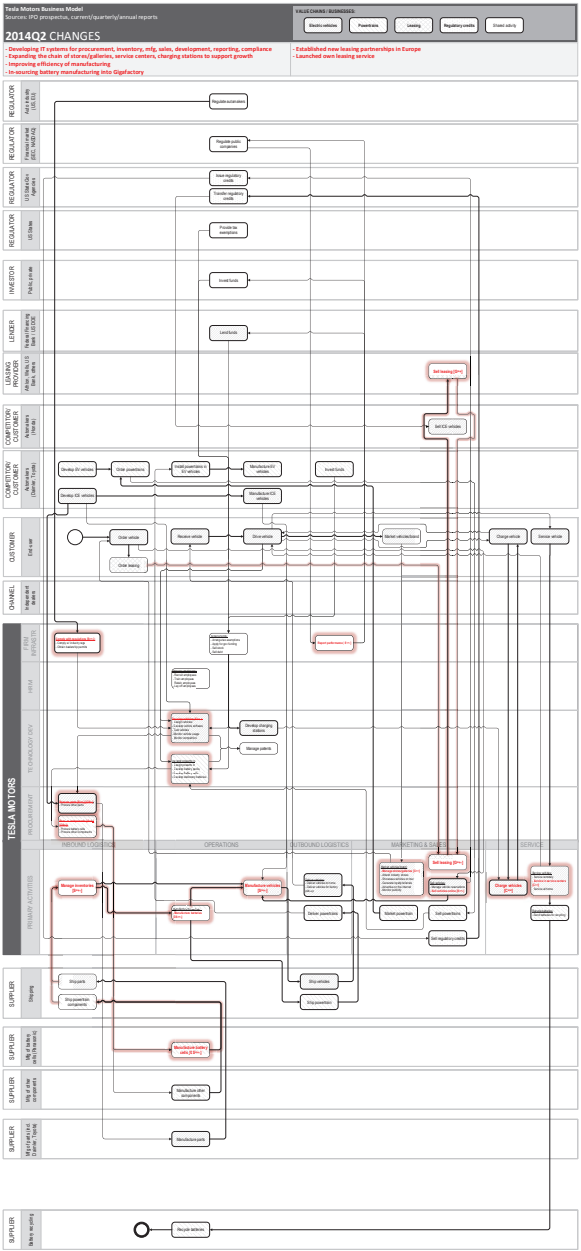
- Sold debt instrument (convertible senior notes) to prepay DOE Loan
- Discontinued compliance with DOE Loan regulations by early prepayment
- Purchased land near Tesla Factory to expand manufacturing

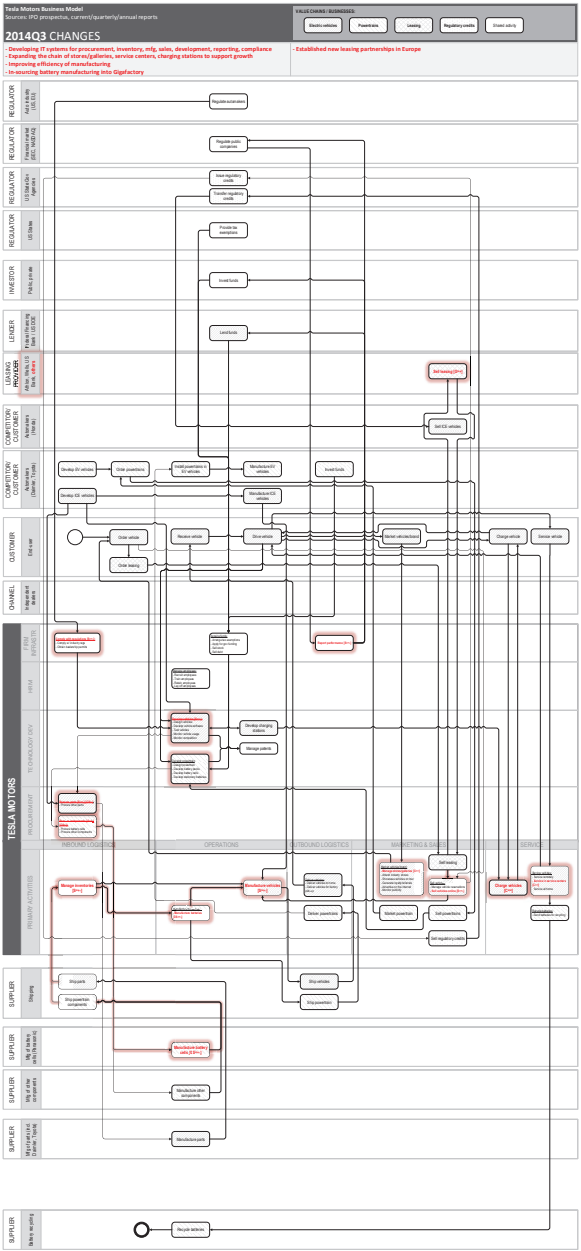



Tesla Motors Business Model
Sources: IPO prospectus, current/quarterly/annual reports
2013Q3 CHANGES
- Developing IT systems for procurement, inventory, mfg, sales, development, reporting, compliance
- Expanding the chain of stores/galleries, service centers, charging stations*
- Improving efficiency of manufacturing, inventory mgmt, supply chain
- In-sourcing some manufacturing processes
- Ramped up production, incl. battery mfg by Panasonic and own assembly in Europe
- Began establishing sales in service centers after learning that new service centers stimulate local demand
- Expanded the number of suppliers of parts/components
VALUE CHAINS / BUSINESSES:
Electric vehicles
Powertrains
Leasing...
Regulatory credits
Shared activity
REGULATOR
REGULATOR
REGULATOR
REGULATOR
INVESTOR
LENDER
LEASING PROVIDER
COMPETITOR/ CUSTOMER
COMPETITOR/ CUSTOMER
CUSTOMER
CHANNEL
TESLA MOTORS
FIRM INFRASTR.
HRM
TECHNOLOGY DEV
PROCUREMENT
INBOUND LOGISTICS
OPERATIONS
OUTBOUND LOGISTICS
MARKETING & SALES
SERVICE
PRIMARY ACTIVITIES
SUPPLIER
SUPPLIER
SUPPLIER
SUPPLIER
SUPPLIER
SUPPLIER


Tesla Motors Business Model
Sources: IPO prospectus, current/quarterly/annual reports
2013Q4 CHANGES
- Developing IT systems for procurement, inventory, mfg, sales, development, reporting, compliance
- Expanding the chain of stores/galleries, service centers, charging stations
- Improving efficiency of manufacturing, supply chain
- Establishing sales process in service centers
- Began developing stationary batteries for energy storage, began in-sourcing battery mfg into Gigafactory
- Established leasing via additional partners in Europe
- Reduced service turnaround time at service centers
VALUE CHAINS / BUSINESSES:
Electric vehicles
Powertrains
Leasing...
Regulatory credits
Shared activity
REGULATOR
REGULATOR
REGULATOR
REGULATOR
INVESTOR
LENDER
LEASING PROVIDER
COMPETITOR/ CUSTOMER
COMPETITOR/ CUSTOMER
CUSTOMER
CHANNEL
TESLA MOTORS
FIRM INFRASTR.
HRM
TECHNOLOGY DEV
PROCUREMENT
PRIMARY ACTIVITIES
INBOUND LOGISTICS
OPERATIONS
OUTBOUND LOGISTICS
MARKETING & SALES
SERVICE
SUPPLIER
SUPPLIER
SUPPLIER
SUPPLIER
SUPPLIER


Tesla Motors Business Model
Sources: IPO prospectus, current/quarterly/annual reports
2014Q1 CHANGES
- Developing IT systems for procurement, inventory, mfg, sales, development, reporting, compliance
- Expanding the chain of stores/galleries, service centers, charging stations to support growth
- Improving efficiency of manufacturing, supply chain
- In-sourcing battery manufacturing into Gigafactory
VALUE CHAINS / BUSINESSES:
Electric vehicles
Powertrains
Leasing...
Regulatory credits
Shared activity
REGULATOR
US States
INVESTOR
Public shareholder
LENDER
Bank / US DOE
LEASING PROVIDER
Bank / Mitsubishi / Daimler
COMPETITOR/ CUSTOMER
Internal / Others
COMPETITOR/ CUSTOMER
Internal / Tesla (Daimler Type)
CUSTOMER
End-user
CHANNEL
Sales and Service Galleries
TESLA MOTORS
FIRM INFRASTR.
HRM
TECHNOLOGY DEV
PROCUREMENT
PRIMARY ACTIVITIES
INBOUND LOGISTICS
OPERATIONS
OUTBOUND LOGISTICS
MARKETING & SALES
SERVICE
SUPPLIER
Shipping
SUPPLIER
Mfg of batteries (Panasonic)
SUPPLIER
Mfg of other components
SUPPLIER
Mfg of parts (US & Other Mfgs)
SUPPLIER
Sales recycling
Develop EV vehicles
Order powertrains
Invest powertrains in EV vehicles
Manufacture EV vehicles
Invest funds
Develop ICE vehicles
Manufacture ICE vehicles
Order vehicle
Order battery
Receive vehicle
Drive vehicle
Service vehicle (recalls/fixes)
Charge vehicle
Service vehicle
Develop charging stations
Manage patents
Manage inventories
Manufacture vehicles
Manufacture other components
Manufacture parts
Service powertrain
Sell powertrains
Sell vehicles
Sell regulatory credits
Ship parts
Ship powertrain components
Ship vehicles
Ship powertrain
Ship pre-owned vehicles


Tesla Motors Business Model
Sources: IPO prospectus, current/quarterly/annual reports
VALUE CHAINS / BUSINESSES:
Electric vehicles
Powertrains
Leasing...
Regulatory credits
Shared activity
2014Q2 CHANGES
- Developing IT systems for procurement, inventory, mfg, sales, development, reporting, compliance
- Expanding the chain of stores/galleries, service centers, charging stations to support growth
- Improving efficiency of manufacturing
- In-sourcing battery manufacturing into Gigafactory
- Established new leasing partnerships in Europe
- Launched own leasing service
REGULATOR
US & EU (FAA, NHTSA, EPA, SEC, FTC)
Regulate social issues
REGULATOR
Worldwide (Antitrust, Competition)
Regulate public competitors
REGULATOR
US (Treasury, Congress)
Issue regulatory credits
Transfer regulatory credits
REGULATOR
US States
Provide tax exemptions
INVESTOR
Public, private
Invest funds
LENDER
Banks / US DOE (Loan Guarantee)
Lend funds
LEASING PROVIDER
Banks, retail, US Leasing Companies
Sell leasing (D+L)
COMPETITOR/ CUSTOMER
Internal (Tesla)
Sell ICE vehicles
COMPETITOR/ CUSTOMER
Outside Tesla (Daimler, Toyota)
Develop EV vehicles
Develop ICE vehicles
Grow powertrains
Install powertrains in EV vehicles
Manufacture EV vehicles
Manufacture ICE vehicles
Invest funds
CUSTOMER
End-user
Order online
Order leasing
Receive vehicle
Drive vehicle
Market vehicle/brand
Service vehicle
Service vehicle
CHANNEL
Sales and Service Galleries
FIRM INFRASTR.
Provide IT systems (Procurement, Inventory, Mfg, Sales, Development, Reporting, Compliance)
Improve efficiency
Report performance, P+L
HRM
Recruit employees
Train employees
Develop employee
Retain employees
TECHNOLOGY DEV
Develop software
Develop charging stations
Manage patents
PROCUREMENT
Procure electricity
Procure battery materials
Procure other materials
TESLA MOTORS
INBOUND LOGISTICS
OPERATIONS
OUTBOUND LOGISTICS
MARKETING & SALES
SERVICE
PRIMARY ACTIVITIES
Manage inventories (D+L)
Manufacture vehicles (D+L)
Manufacture batteries (D+L)
Sell leasing (D+L)
Manage vehicles (D+L)
Service powertrains
Market powertrains
Sell powertrains
Sell regulatory credits
SUPPLIER
Shipping
Ship parts
Ship powertrain components
Ship vehicles
Ship powertrains
SUPPLIER
Mfg of batteries (Panasonic)
Manufacture battery cells (D+L)
SUPPLIER
Mfg of other components
Manufacture other components
SUPPLIER
Mfg of parts (US & Worldwide)
Manufacture parts
SUPPLIER
Mature recycling
Recycle batteries


Tesla Motors Business Model
Sources: IPO prospectus, current/quarterly/annual reports
VALUE CHAINS / BUSINESSES:
Electric vehicles
Powertrains
Leasing...
Regulatory credits
Shared activity
2014Q3 CHANGES
- Developing IT systems for procurement, inventory, mfg, sales, development, reporting, compliance
- Expanding the chain of stores/galleries, service centers, charging stations to support growth
- Improving efficiency of manufacturing
- In-sourcing battery manufacturing into Gigafactory
- Established new leasing partnerships in Europe
REGULATOR
Regulate social issues
REGULATOR
Regulate public competitors
REGULATOR
Issue regulatory credits
Transfer regulatory credits
REGULATOR
Provide tax exemptions
INVESTOR
Invest funds
LENDER
Lend funds
LEASING PROVIDER
Sell leasing (Q3'14)
COMPETITOR/ CUSTOMER
Sell ICE vehicles
COMPETITOR/ CUSTOMER
Develop EV vehicles
Grow powertrains
Install powertrains in ICV vehicles
Manufacture ICV vehicles
Invest funds
Develop ICE vehicles
Manufacture ICE vehicles
CUSTOMER
Order vehicle
Receive vehicle
Drive vehicle
Operate vehicle (charge)
Change vehicle
Service vehicle
Order leasing
CHANNEL
TESLA MOTORS
FIRM INFRASTR.
Provide IT systems (Q3'14)
Develop IT systems
Report public issues (Q3'14)
HRM
Hire employees
Train employees
Reward employees
Fire employees
TECHNOLOGY DEV
Develop charging stations
Manage patents
Develop battery technology
Develop battery manufacturing
Develop battery supply chain
Develop battery recycling
PROCUREMENT
Procure electricity
Procure other supplies
Procure other subsystems
INBOUND LOGISTICS
OPERATIONS
OUTBOUND LOGISTICS
MARKETING & SALES
SERVICE
PRIMARY ACTIVITIES
Manage inventories (Q4'14)
Manufacture vehicles (Q4'14)
Manufacture powertrains (Q4'14)
Manufacture other components
Sell leasing
Sell vehicles (Q4'14)
Manage vehicles (Q4'14)
Service vehicles (Q4'14)
Service powertrains
Sell powertrains
Sell power factory
Sell regulatory credits
SUPPLIER
Shipping
Ship parts
Ship powertrain components
Ship vehicles
Ship powertrains
SUPPLIER
Mfg. of batteries
Manufacture battery cells (Q3'14)
SUPPLIER
Mfg. of other components
Manufacture other components
SUPPLIER
Mfg. of parts
Manufacture parts
SUPPLIER
Mfg. of vehicles
Ship pole batteries

5. DESIGNING A PROCESS FOR TRACKING BUSINESS MODEL CHANGE

The paper has adopted a design science research approach to design and verify with key stakeholders a fundamental management process of revising KPIs (key performance indicators), including those indicators that are related to business model change. The paper proposes a general guide for such process design, which is applicable in similar settings, i.e. other multi-subsidiary global firms operating in dynamic industries. The management of the focal case uses a set of KPIs to track performance and thus to allow for bringing about strategic and tactical changes, including the initiatives that may alter the business model of the firm. The decision-making process about which metrics to track affects what management's attention is focused on during the year. The rather streamlined process outlined here is capable of facilitating swift responses to environmental changes in local markets by establishing new KPIs on an ongoing basis together with the business units on the ground, and is thus of key importance to strategic management of the firm. The paper concludes with a discussion of its methodological compliance to design science research guidelines and revisits the literature in process innovation, performance management and business model change that informed the design throughout the project.

5.1. INTRODUCTION

In a context where the business model of the firm is continually changing on multiple dimensions in response to the demands of the rapidly changing business environment, how can a subsidiary turn a season of hectic requests from headquarters to adopt strange new performance metrics – into a structured management process that ensures the relevance of key performance indicators (KPIs) to business units on the ground?

This was the question a mid-sized European subsidiary of a global corporation in the ICT industry – TechCorp – considered after having conducted a KPI revision process that consumed time that might otherwise have been spent on other value-creating activities, such as new business development or improvement of existing operations. At the time, I had been an embedded researcher with the firm for six months. My research interest was in exploring strategic business development initiatives triggering changes in the status quo business model of the firm. For that purpose, I had interviewed employees and studied internal documents. I had also been working on several operational projects. As the KPI revision was initiated, I happened to be equipped with useful organizational knowledge ready to be leveraged in real-time problem solving. Management in turn recognized that an academically grounded researcher already present at the company may be able to design an improvement to the process.

The project ended with a new process design that was accepted by the TechCorp's subsidiary as a more preferable alternative for the future. This paper is the account of this design science research project, which results not only in a specific process design but also in a more general guide to designing such processes to address a class of problems – how one can work from the bottom up to improve a management process of introducing new KPIs in an organization with multiple local subsidiaries around the globe, each facing

different business conditions and consequently operating with somewhat unique business models.

The paper has the following structure. In the next section I review the literature which encapsulates the point of departure in this project. The literature streams of immediate relevance here are process innovation, performance management, and business model change. Further, I explain my methodological approach, namely, design science research (DSR), and follow up with a more detailed description of the focal firm and its problem situation as well as of the phases of my inquiry process and the sources of data. After a deep dive into the methodology, I proceed with the account of the actual design project that I conducted with the focal firm. My process follows a number of iterations with the purpose of designing and verifying a better KPI revision process, interspersed with literature consultations and guided by my own earlier practical experience with process improvement. The result of the inquiry is a solution to a problem and a general guide for such problem solving.

Finally, I conclude with a discussion of results in terms of their compliance to design science research guidelines, revisit the literature that initially informed the inquiry, and outline implications for future research and practice.

5.2. LITERATURE REVIEW

5.2.1. PROCESS INNOVATION

The literature on process innovation has come a long way since the seminal works of Abernathy and Townsend (1975) and Utterback and Abernathy (1975), who introduced and clarified the concept of process innovation, and differentiated it from product innovation. Nowadays process innovation seems to have settled in the operations management discipline, which has become known for such approaches as six sigma (Harry, 1998), business

process reengineering (Grover and Malhotra, 1997; Grover, Teng, and Fiedler, 1993), and lean production (Womack and Jones, 1996; Womack, Jones, and Roos, 1990), all aiming to lower operations costs by boosting the efficiency of production processes. This type of innovation usually seems to produce incremental improvements; however, some authors originally tended to see the possibility of radical advances in process innovation initiatives (Davenport, 1993; Davenport and Short, 1990; Hammer, 1990).

It is widely accepted today that a more radical kind of innovation warrants the use of open-ended techniques that take a holistic view on how business activities can be organized to respond to customer needs with a different, rather than slightly improved, product or service. Design thinking (Brown, 2008; Martin, 2009) is the prime example of such an approach. This approach can also be leveraged for the bettering of strategy making by implementing processes that are more participative, dialogical, iterative, experimentalist, and responsive (Fraser, 2007; Liedtka, 2000).

In the activity-based theory of the firm, processes can generally be seen as either primary or support activities that together constitute the firm's complete value chain (Porter, 1998: 38). The process of particular interest in this paper, namely the creation and revision of KPIs, in the Porterian view of the firm, belongs to the set of infrastructure activities which support the entire value chain. These activities may include general management, planning, and finance (Porter, 1998: 43), where final decisions on strategy are usually made, including how progress towards organizational goals will be measured.

Despite the final strategy decisions being made by upper echelon managers, it is hard to imagine that management is always able to possess a thorough knowledge of market challenges and organizational hindrances to make intelligent choices from the confines of the ivory tower. For a more successful and lasting outcome of a new design, the literature on co-design (Sanders and Stappers, 2008) and participatory innovation (Buur and

Matthews, 2008) strongly argues for the involvement of users and corporate stakeholders in the innovation process. As the users of KPIs are in fact all managers and individual employees whose personal contributions are evaluated against these metrics, and who know the shop floor business nuances, not involving them in the co-creation process would be a mistake.

> **Theory-inspired design guideline 1**: An opportunity should be provided for all employees concerned to co-design the metrics during the development of KPIs.

5.2.2. PERFORMANCE MANAGEMENT

It has long been recognized that strategy can be seen as a process of emergence (Mintzberg, 1978; Mintzberg and Waters, 1985) rather than deliberate planning and execution of long-term plans (Porter, 1980, 1985). The metrics that measure firm performance in this view are akin to a car dashboard and a windscreen which allow the driver to constantly receive signals from the engine and the road, and to handle levers to maintain or adjust the course. In correspondence with this metaphor, we have seen the rise of publications about management dashboards and (balanced) scorecards to track firm performance (Kaplan and Norton, 1992) as well as about the process of development of such scorecards (Ahn, 2001; Butler, Letza, and Neale, 1997; Kaplan and Norton, 1996) and the specific sets of metrics that may be valuable to include in these scorecards (Maltz, Shenhar, and Reilly, 2003; Parmenter, 2007).

The original balanced scorecard proposition (Kaplan and Norton, 1992) suggested using the following four sets of parameters to measure the complete performance of the firm: (1) customer metrics – how customers see the company; (2) internal business process metrics – what the company must excel at; (3) innovation and learning metrics – how the company continues to improve and create value; and (4) financial metrics – how the shareholders see the company. By including non-financial parameters and limiting the

number of KPIs to a handful of critical and focused measures, the proposition has "revolutionized conventional thinking about performance metrics", as acknowledged in the Harvard Business Review editor's note to the reprint of the classic 1996 article (Kaplan and Norton, 2007). Further research has detailed and broadened the spectrum of the categories of metrics that firms can use in their performance scorecards. For example, Maltz *et al.* (2003) empirically established a fifth dimension of measures which are related to people development, and Parmenter (2007) proposed a sixth dimension focused on environment/community so that the resulting balanced scorecard incorporates all "triple bottom-line" concerns of the modern enterprise.

> **Theory-inspired design guideline 2**: A diversity of perspectives on the metrics to be measured should be ensured during the development of KPIs.

Kaplan and Norton (1996) describe how one insurance company developed and introduced the balanced scorecard as a strategic management system by following an iterative step-by-step process over 30 months. They argue that an established system of metrics should not be seen as a constant, but that the company must be able to question the underlying logic of causal relationships between the metrics as business conditions change and early signals of underperformance are received, and consequently alter the strategy, thus exercising "double-loop learning" (Argyris, 1977).

A warning against viewing the balanced scorecard as a stable entity was articulated in Dinesh and Palmer (1998); here the balanced scorecard was compared to the concept of management by objectives (MBO), which eventually fell out of favor. The cause of the demise was the increasing speed of change in the business environment. The same caution was later echoed in a critical reflection on the balanced scorecard implementation experience at a strategic business unit of a Swiss-based industrial corporation (Ahn, 2001). The importance of periodically refining the established system of metrics has been further reiterated by Parmenter (2007, 2015) in his practical 12-step guide to developing and using KPIs.

Theory-inspired design guideline 3: Ad-hoc revisions of KPIs should be built into the process that follows the initial development.

5.2.3. TRACKING BUSINESS MODEL CHANGE

The business model concept entered the lexicon in the early 2000s, after the opening of new ways to organize business activities following the mass adoption of the internet technology. More recently, under the label of "business model innovation", the literature continued to develop in the direction of how firms adapt and change their business models. The business model of the firm seems to be in a constant state of flux (Demil and Lecocq, 2010), which makes monitoring change and progress towards a new state a non-trivial task. Nevertheless, what have we learned by now about how business model change can be tracked?

There are plenty definitions of "business model" developed and used by different scholars, and the debate continues. Each definition though seems to be decomposable into its constituting components. For example, one prominent view proposes to include nine elements such as value proposition, customer segments, channels, customer relationships, partners, activities, resources, cost structure, and revenue streams, and organize them into a "business model canvas" framework (Osterwalder, 2004). Another view focuses on activities in terms of their content, governance and structure (Amit and Zott, 2001; Zott and Amit, 2010). Yet another proposition argues for four components of the business model: customer identification (users or other groups to pay for value proposition), customer engagement (standardized or customized value proposition), value chain linkages (organizational form for value delivery), and monetization (pricing schemes) (Baden-Fuller and Haefliger, 2013). All these component-based views of the business model allow us to develop techniques to account for changes in the underlying components, some of which would be large enough to be called business model changes.

An alternative approach would be to track the outcomes of the firm's different business operations, where each business operation is recognized as having a different business model. Here, an outcome may be the share of revenue generated by a particular business operation along with its share in the overall cost base (Demil and Lecocq, 2010). Another observable outcome of business model change may be a change in the market segments served (Doganova and Eyquem-Renault, 2009), or the geographical regions where certain parts of business are conducted (Ramanathan, 2009), or the revenue model as exemplified by a certain pricing mechanism (e.g. one-time fees vs subscriptions) (Pauwels and Weiss, 2008), or the share of customers using the output (a certain offering) of the new business model (Willemstein *et al.*, 2007).

Business model innovation is known to influence firm performance (Zott and Amit, 2007). Innovative changes in the business model are associated with faster margin growth (Pohle and Chapman, 2006) and can increase shareholder value (Amit and Zott, 2012). The firm's fundamental activity reconfiguration efforts through business model innovation have been established to enhance its strategic flexibility and consequently improve performance (Bock *et al.*, 2012). Further, some types of business models have been empirically confirmed to have better financial performance than others (Malone *et al.*, 2006). Consequently, once the firm embarks on a journey to change its business model, tracking its progress becomes an important tool to provide the management with timely updates on possible deviations from the course towards improved financial performance.

The sources of reliable data on business model changes may be difficult to discover at once. The trajectories of public companies can be tracked via public announcements and news articles about changes in operations, whereas private companies that are not legally required to report changes require inside access. Tracking changes in own firm seems easy in terms of access, yet may be difficult to implement as a smooth process, not least because of the multitude of opinions of the involved stakeholders who need

to agree on what exactly to track, and the limitations of data quality, collection processes, and analytical capabilities.

> **Theory-inspired design guideline 4**: In a dynamic business environment, business model change as a potent approach to improving firm performance should be monitored by management.

5.3. METHODOLOGICAL APPROACH

5.3.1. DESIGN SCIENCE RESEARCH

As introduced at the beginning of this paper, my methodological approach is design science research (DSR) within the pragmatist philosophy of science. This approach is rather unconventional and new in organization and management sciences (van Aken, 2004; van Aken and Romme, 2009; Jelinek, Romme, and Boland, 2008), compared to more plentifully available positivist and interpretivist research, where some of the most common methods are surveys and case studies, respectively. In contrast, DSR and its governing pragmatist paradigm is a future-oriented research approach that is interested in creating new systems that do not yet exist, or improving the performance of existing ones. These systems or performance improvements come into being by creating new practices from scratch or by changing existing social practices into desired ones (Simon, 1969).

The outcome of DSR is relevant and useful for practice; the approach does not aim to discover universal laws that rule the objective reality (as in positivism) or to understand the multiverse of realities by entering the subjective worlds of research subjects (as in interpretivism). However, insights from research in those paradigms along with diverse methodological techniques may serve as important input into a design process, and ought not to be neglected in a DSR study; my study follows this principle.

The contribution of design science research lies in developing prescriptive knowledge, or technological rules, for a professional field like

management, thus making an important step towards closing the gap between rigor and relevance of academic research (Burgoyne and James, 2006). The results of design science research are also known as "design propositions" (van Aken and Romme, 2009), "utility theories" (Venable, 2006), "management theories" (as opposed to "organization theories") (van Aken, 2005), or "technological rules" (van Aken, 2004) that can be applied to a class of problems. The objective of such design guidelines is to propose a prescriptive heuristic rule in the form of "if you want to achieve Y in situation Z, then do (something like) X" (van Aken and Romme, 2009; Huff, Tranfield, and van Aken, 2006).

5.3.2. FOCAL FIRM AND ITS PROBLEM SITUATION

For confidentiality reasons, the focal firm TechCorp is anonymized here. The name of the company is not as important as the class of problems it represents. The class of problems can be defined by appealing to certain characteristics of the firm, its business environment, and the specific problem situation.

Organizationally, the focal firm is a subsidiary of a large global corporation operating in the ICT industry. Geographically and culturally, the firm is located in Europe and employs staff of local and international origin, whereas the global headquarters are based elsewhere.

The business environment in the ICT industry is generally characterized by rather low technological barriers of entry and shifting customer preferences, which collectively creates a permanent threat of new entrants and substitutes that can address the same need in a new way and take share from the present market leaders.

The specific problem situation that the focal firm faced is basically a way to cope with changing business conditions by drawing managers' attention to the key drivers of performance, where these very key drivers need to be rethought and updated on a regular basis. The process initiated by

the corporate headquarters has resulted in the production of KPIs of uncertain utility to the actual everyday management of the local subsidiary, according to one-to-one interviews with the involved employees.

5.3.3. INQUIRY PROCESS AND DATA SOURCES

The actual process improvement project in the field took four months, while my whole engagement with the focal firm amounts to almost 12 months and employs a variety of data sources (see Table 5.1). Throughout my engagement, I followed a design science approach. In this methodological approach, I took an active role and intervened in the field by designing an artifact (a new management process) and testing it with the staff involved. My inquiry process consisted of four phases: (1) engagement with the focal firm; (2) problem understanding; (3) (co-)designing a new KPI revision process; and (4) final reflection.

Table 5.1. Inquiry process and the firm's annual strategic management cycle

	Firm's annual strategic management cycle	Inquiry phase	Data sources
Q2	Strategy planning for three years		
Q3	Budget planning for next year	**(1) Engagement with the focal firm**	• Internal documents (28 documents related to change initiatives) • Interviews (16 employees, total of 10 hours and 9 minutes) • Daily interaction with employees
Q4	KPI revision		
Q1		**(2) Problem understanding**	• Interviews (16 employees, total of 7 hours and 12 minutes)
Q2	Strategy planning for three years (next cycle)	**(3) (Co-)designing a new KPI revision process**	• Literature review (45 papers) • Formulation of process requirements (1 document) • Verification of the emerging design with stakeholders (5 one-to-one and group meetings)
		(4) Final reflection	• Research journal (21,000+ words) • Write-up of this paper

The *first phase* of immersion in the field went on for six months, during which I studied internal documents related to business model change and conducted interviews with 16 employees involved in these initiatives. The interviewees included managers from business development, product, customer service, and marketing functions as well as senior management. My primary goal was to retrieve historical information on each of the recent initiatives that are likely to exhibit changes in the business model of the firm in the near future. For that, I recorded and transcribed all interviews, and organized the essential insights into themes. A positive side effect of these interviews was also getting to know and building trust with the people across the organization, which proved useful for the future intervention.

Management recognizing potential issues with the KPI revision marked the beginning of the *second phase*. Over two weeks I conducted targeted interviews with 16 of the 20 employees who were involved in the latest KPI revision process during the prior three months. The interviewees in this phase included managers from business development, product, finance, and marketing functions as well as senior management. The main purpose of these explorative interviews was to understand the individual experiences of the KPI revision process and to invite personal evaluations of its outcomes, thus paving the way for the formulation of user requirements for a better process. All interviews were recorded and key points summarized.

After the distillation of requirements from the interviews, the *third phase* proceeded with the actual artifact creation – a new process design for revising the KPI scorecard – and its verification with organizational stakeholders. This design phase took three months to complete and included four interactions with stakeholders. Stakeholders were clustered in four groups, where the decision whom to include in which group and how to approach each stakeholder was made in collaboration with the senior manager, who coordinated the recent KPI revision and initiated the process improvement project.

Finally, I kept a personal research journal where on a daily basis I recorded important events, action plans and reflections. My research journal contains daily entries over 12 months and totals more than 21,000 words. This journal, together with the present paper write-up, was helpful in the *fourth and final phase* of reflection resulting in a step-by-step guide of how to create a better process of revising KPIs in a multi-subsidiary organization operating in a dynamic industry.

5.4. DESIGNING A BETTER PROCESS FOR TRACKING (BUSINESS MODEL) CHANGE

5.4.1. PHASE 1: ENGAGEMENT WITH THE FOCAL FIRM

The first phase of the project took six months. In the annual management cycle the second half of the year is used to detail the next year's initiatives that had been formulated during the three-year strategy planning process in spring, and also close the current budget year.

At the firm, no one specifically spoke about "business model change initiatives" as such, but I had received indications from my initial contacts that the organization actually was working on altering their approach to conducting business on a fundamental level which can qualify as business model change. Note should be made here that the definition of the business model that I align with, is that of Zott and Amit (2010). That is to say, during my research I was looking for indications for possible changes in the content, governance, or structure of the focal firm's activities as a result of each specific initiative.

The first set of initiatives that I started investigating was related to focusing on specific customer segments interested in certain products. This would result in the addition of new activities to the extant business model,

where market segments previously had not been addressed separately.
I proceeded to interview nine employees who worked on these initiatives to a greater or lesser extent. I also allowed myself to stay in the explorative and open state of mind to be able to capture new directions for further inquiry.

As I progressed though my interviews, I learned that there were other projects related to the business model that the firm was working on. The horizon of my inquiry expanded. To acquire an understanding of these other initiatives, I started off by reviewing an extensive list of ideas recently submitted to management for consideration. The initiative submission and review cycle would be repeated twice a year (during the strategy process in spring and the budget process in fall), unless changing business conditions required a fast response, or a particular idea was too attractive and relatively easy to implement for it to be shelved for later. I shortlisted 41 initiatives for further investigations through focused interviews with eight project owners.

The business model change initiatives revolved around five themes that were inductively discovered by myself as a result of interview analysis according to the established practices of grounded theory (Charmaz, 2006; Glaser and Strauss, 1974), such as coding and memo-writing. The themes combined effectively placed the firm on a transformation journey along the trajectory of enhancing the core business model, rather than "unlocking the nucleus" within the core or extending beyond the core business model (see Chapter 4 for more detailed descriptions of these trajectories).

The initiatives were going to trigger changes in the business model on a number of dimensions and invited the development of a set of KPIs to monitor progress. What could these KPIs look like? Do all of them deserve a place on the top level management's scorecard? How to develop and agree on the exact metrics? The reviewed documents typically referred to revenue, usage, inventory, and customer satisfaction as key metrics of success – not any more specific than that.

We now switch back to the key issue that was recognized a few months later, after the current year's KPI development process was completed.

5.4.2. PHASE 2: PROBLEM UNDERSTANDING

Fast forward to the start of the next year. The organization just came out of the KPI development process with a top level scorecard as an outcome. This scorecard was going to be used during the year to track the performance of local businesses across a number of markets, and further detailed to be used by the specific business units and teams in each country.

The structure of the top level "balanced scorecard" somewhat mirrored the one proposed by Kaplan and Norton (1992), although the groups were not exactly the same and the parameters were not exactly placed as one would naturally expect. A senior manager, who coordinated the process, requested that I initiate an investigation aiming to understand the nature of the KPI process and to develop ways to mitigate the reappearance of problems in the next cycle.

During this stage, I interviewed 16 out of 20 employees involved. My interviews focused on three topics: the use of KPIs in daily work, the experience of the recent KPI revision process, and the relationship between performance, new initiatives and KPIs. The analysis included listening to the interview tapes and recording relevant points that would facilitate the formulation of requirements for an improved process. The aim of the interviews was rather unambiguous, therefore no full transcriptions were made, which also sped up the transition to the next phase.

5.4.3. PHASE 3: (CO-)DESIGNING A NEW PROCESS

This phase includes the artifact designing and testing activities during three months in spring. The artifact is a new design of the KPI revision process.

Formulating requirements. The first step to a new design was to distill the requirements from the interviews conducted in the prior phase. Here, I re-read the key points from the interviews, and organized them in a two-column table; the first column described the experienced problem and the second proposed the actual requirement as a response to the problem.

Table 5.2 shows the final list of 30 requirements. The original list was insignificantly modified during the design cycles following stakeholder reactions, mostly to maintain a good overview and structure. This was achieved by merging some of the similar requirements and by organizing the requirements into two groups, i.e. those about the process flow (requirements 1-20) and those about the KPIs themselves (requirements 21-30).

Table 5.2. Requirements for a new KPI revision process flow and the KPIs as the outcome of the process

	Experienced problem	Therefore, the new process must…
Process flow related requirements		
1	Participants experienced lack of clarity and transparency about who is in charge of the process, who initiates and who approves new KPIs, what the steps and the deadlines are	…follow a defined step-by-step procedure (who delivers what to whom and when) or include a strong project leader (if the process is not well-described)
2	Participants experienced Friday night requests with deadlines on the same weekend, also shrinking deadlines	…include realistic deadlines for requesting input
3	Participants experienced communicating on a number of levels, lack of clarity, misunderstandings, changes throughout the process	…include a series of alignment/ clarification meetings between the central organization, local management, and business unit leaders
4	Participants experienced lack of understanding of why particular KPIs are introduced, both by the central and local management	…include explanation sessions for KPIs as regards their business logic
5	Participants experienced workshops leading to analysis paralysis, also costs for personal meetings being too high; therefore proposed a few video calls as a good middle ground to ensure dialog between the center and the local business	…include a few dialog sessions between the central and local management via video conferencing
6	Participants experienced requests for data for irrelevant KPIs, felt they should have been asked to provide business-relevant KPIs in the first place, did not feel that the local project leadership resisted demands from the center	…follow a stronger bottom-up approach to deciding on the KPIs

	Experienced problem	Therefore, the new process must…
7	Participants experienced lack of clarity as to what formula and data should be used for calculating each centrally requested KPI	…include discussions of the definitions of KPIs before data collection
8	Participants experienced their propositions being later modified or rejected without their knowing	…take the input from participants seriously
9	Participants experienced time-consuming requests taking their time from the actual work, also their propositions neglected later	…respect the time of participants
10	Participants experienced both a desire to participate in discussions personally and satisfaction with delivering input through their managers, as long as the propositions are taken into account	…allow for both direct and indirect participation, according to individual participants' preferences
11	Participants experienced lack of clarity about the reasons behind the requests for new KPIs in new versions of the scorecard, and the nature of such requests	…include clear signals whether new KPIs are orders to be followed or suggestions to be taken into account
12	Participants experienced being involved in the process half-way through, with resulting loss of understanding	…involve participants at the beginning of the process
13	Participants experienced seeing too many meetings their colleagues took part in	…include less meetings that are held separately, as opposed to a one common workshop
14	Participants experienced seeing too many colleagues running around, reacting to requests	…include less participants
15	Participants experienced incapability to technically track the requested KPIs and having ended up with compromise metrics	…discover technical capability for KPI tracking before data collection
16	Participants experienced using manual work to collect data for KPIs, and human errors	…include automated tracking data collection
17	Participants experienced having to work with far too complex multi-user multi-versioned spreadsheets, where layouts have been changing and formulas eventually breaking	…support easy data input for requested KPIs
18	Participants experienced interruptions in the financial planning process flow which did not feel natural and led to unnecessary revisiting of the same topics	…merge with the budget process
19	Participants experienced the length of the process differently: some thought it took too long, some would have preferred a slower-paced approach	…include clear communication about the progress in the overall process
20	Participants are interested to discuss action plans in case of underperformance, and learn from others in other parts of the business	…include discussions about possible tactics to react to changes in KPIs
KPI related requirements		
21	Participants experienced some of the KPIs losing meaning during the year due to changes in the business, or a need to track new initiatives	…allow for addition and removal of KPIs throughout the year, outside of the annual cycle

	Experienced problem	Therefore, the new process must…
22	Participants experienced that some centrally requested KPIs were meaningless due to the specificity of the local business, e.g. due to a certain pricing model in use	…end with meaningful KPIs for managing the business
23	Participants do not use high-level KPIs for managing the business, but must report them to the central management, which becomes an administrative burden	…end with KPIs that are useful for managing the business, rather than a burden to please central management
24	Participants experienced that working with too many metrics is not useful in managing the business, especially with those that are not critical or the measurements of which take place rarely, e.g. only quarterly	…end with a smaller amount of KPIs that actually matter
25	Participants experienced some high-level KPIs to be snapshots of the past and as such useless for managing the business	…end with forward-looking, deviation-from-the-trend-like, market-oriented KPIs that would provide the possibility to constantly adjust the business
26	Participants experienced ending up with KPIs that are too short-sighted and do not encourage the evolution of the business towards the new vision	…end with KPIs that measure long-term success
27	Participants experienced that some KPIs are quite similar and questioned their necessity	…end with a set of diverse KPIs to comprehensively measure the business
28	Participants know that some metrics are more important than others, but it is not reflected in the scorecard	…end with KPIs that are prioritized/ ordered
29	Participants experienced having ended up with some KPIs covering broad areas of responsibility, multiple business units and revenue streams, and lost track of the underlying components	…end with traceable KPIs, if they are aggregates, or disaggregated KPIs that are owned by single business units
30	Participants monitor some important but highly volatile KPIs and want to avoid unnecessary discussions with management, who do not necessarily understand the BU; they also monitor lots of very specific KPIs on a daily basis that are of no importance to general management	…end with some KPIs away from the official scorecards

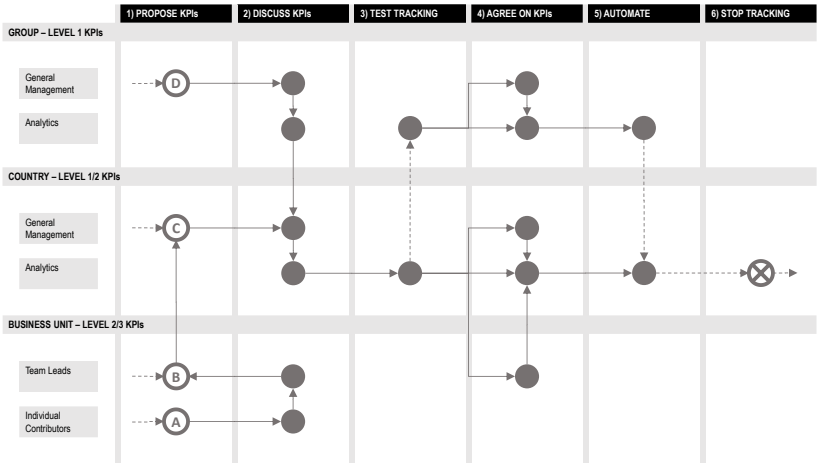
Following the distillation of requirements early in the year, my intention was to familiarize the senior manager with the problems discovered and involve this person in the design process. This is where I reached the boundary of co-designing. The initial idea was to do a rather simple exercise of organizing the problems into themes together; however, the manager did not seem responsive to fully engage in it. While not fully unexpected, this experience triggered a search for explanations. I tend to interpret it in a way that this inductive analytical work requires a certain mindset and

prioritization, and project participants are not necessarily always able to provide that. Nevertheless, the useful outcome of this discussion was an agreement that the most appropriate next step for me would be to design a solution (new process) to counter the problems. The solution would need to be sent to the senior manager as input for another discussion and the decision when to involve a senior executive. Later it would be distributed to all process participants. The solution should be rather open to allow contributions from stakeholders. Based on my prior professional experience with process improvement, I also knew that the initial process diagram must not be too complex, i.e. it should fit on one A4 sheet and should not look like a mess of numerous boxes and arrows pointing in all directions. Looking back at the actual design process, it did not go exactly as planned at this stage, but again it was not surprising, since any deep engagement with the field should be expected to be interactive and course-correcting. In the meanwhile, I consulted the literature on performance management and process innovation. Coupled with my familiarity with the business models literature from prior studies, I formulated a set of preliminary design guidelines (see Section 5.2 above), and advanced to develop the first iteration of a new KPI revision process.

First design iteration. The design of the first iteration took me about one day of full-time work. To visualize the process diagram, I used some of the familiar principles from the Business Process Modeling and Notation (BPMN) industry standard (Object Management Group Inc., 2011), most notably the organization of activities into swimlanes with actors on the left and the process flow progressing through stages from left to right (see Figure 5.1). The diagram shows four alternative paths ("A", "B", "C" and "D") of how a new KPI comes into being and follows its life cycle until the removal from the scorecards.

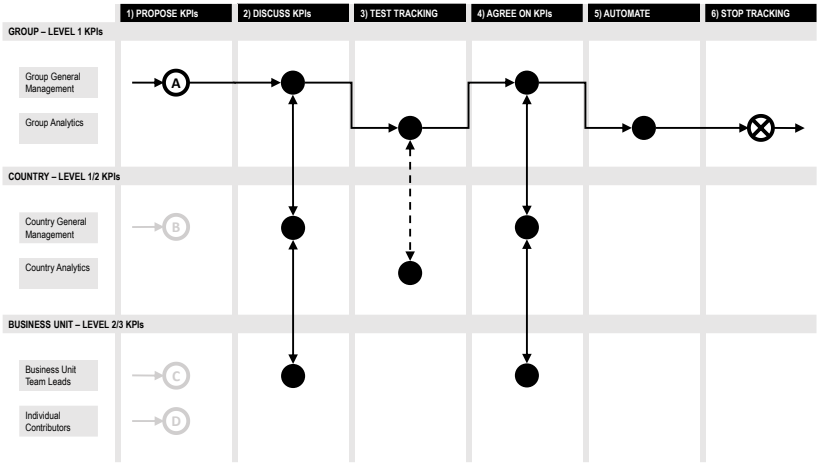
I sent the diagram to the senior manager, who noted that the understanding of the order of the steps in the design process had evolved, and thus proposed to first discuss the new design with own team members.

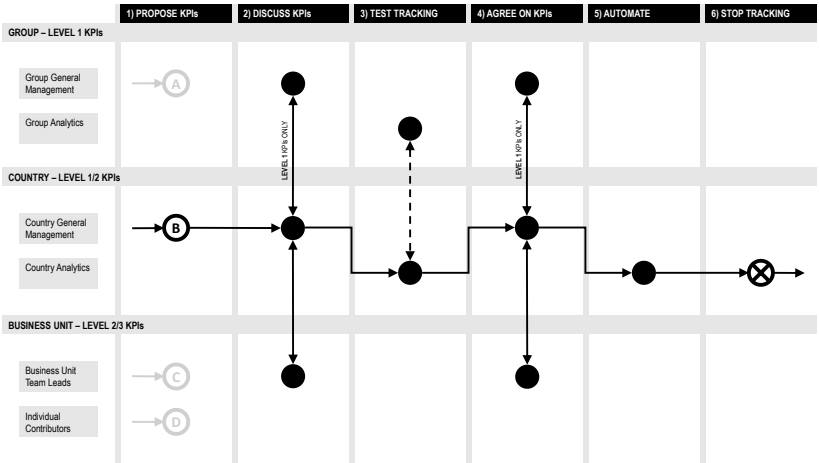
Figure 5.1. Initial draft of the new KPI revision process (designed based on identified requirements and literature review)

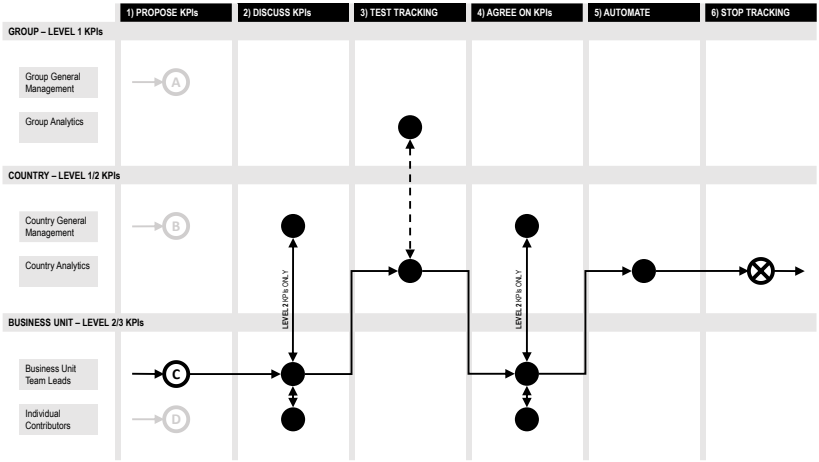


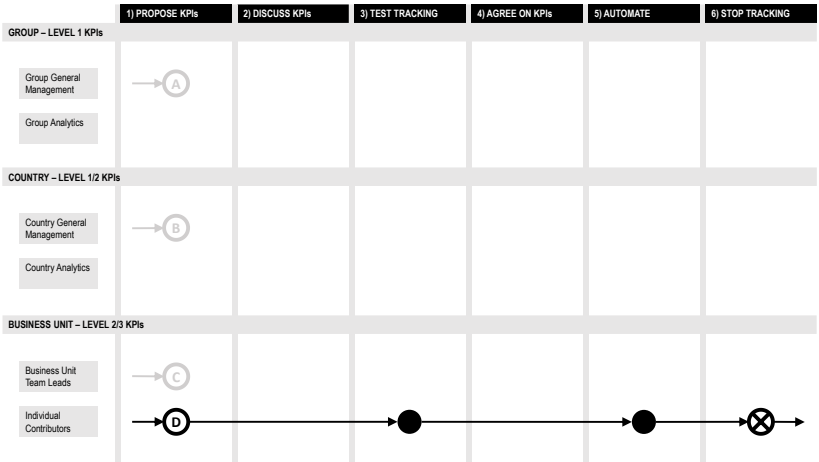
This seemed sensible in this organizational context, yielding useful feedback as follows. The process looked confusing, especially in Stages 2 and 4 ("Discuss KPIs" and "Agree on KPIs"), because the sequence of discussions and the responsibilities to guide these discussions were not obvious from the diagram. Based on this feedback, I redesigned the diagram (see Figure 5.2). As a result of the redesign, the diagram was de-cluttered by splitting it into four separate drawings (each focusing on one alternative path – "A", "B", "C" or "D"), and transferring the process driver's role from the analytics team to a particular KPI initiator. After the redesign, I verified the new diagram and received an affirmative response that it "makes a lot of sense now".

Figure 5.2. First iteration of the new KPI revision process (redesigned based on feedback from the senior manager's team)






1) PROPOSE KPIs
2) DISCUSS KPIs
3) TEST TRACKING
4) AGREE ON KPIs
5) AUTOMATE
6) STOP TRACKING
GROUP – LEVEL 1 KPIs
Group General Management
Group Analytics
COUNTRY – LEVEL 1/2 KPIs
Country General Management
Country Analytics
BUSINESS UNIT – LEVEL 2/3 KPIs
Business Unit Team Leads
Individual Contributors
A
B
C
D
LEVEL 2 KPIs ONLY
LEVEL 2 KPIs ONLY


1) PROPOSE KPIs
2) DISCUSS KPIs
3) TEST TRACKING
4) AGREE ON KPIs
5) AUTOMATE
6) STOP TRACKING
GROUP – LEVEL 1 KPIs
Group General Management
Group Analytics
COUNTRY – LEVEL 1/2 KPIs
Country General Management
Country Analytics
BUSINESS UNIT – LEVEL 2/3 KPIs
Business Unit Team Leads
Individual Contributors
A
B
C
D

The redesigned process diagram (see Figure 5.2) reads like this. Let us take the example of path "A" which describes the case when the corporate general management initiates a new KPI. After the general management comes up with an idea for a new top level performance metric (Step 1, "Propose KPIs"), they discuss the business logic and the preliminary definition of this new KPI with the general managers of the countries in question; they in turn consult with their subordinate business unit leaders (Step 2, "Discuss KPIs"). Following the preliminary agreement, the technical feasibility to track the metric is investigated by the group analytics, and if necessary local analytics teams (Step 3, "Test tracking"). Based on this feasibility study, the precise KPI definition is either modified if tracking is not possible, or left as is if the technical capability allows, thus leading to the final agreement on the definition of the metric among the business managers at all three levels (Step 4, "Agree on KPIs"). Once this agreement is reached, the corporate analytics team establishes automatic reporting in the business intelligence system (Step 5, "Automate") which runs database queries and calculates the KPI in question until it becomes obsolete and is removed from the system (Step 6, "Stop tracking").

Second design iteration. The next iteration of the process design was held in late spring as a group meeting with employees from business units. The one-hour meeting was structured in two parts: first, a presentation of the current draft led by myself; and second, a Q&A session, where participants would voice their concerns and we all together would try to find solutions immediately or keep the creative sparks for later.

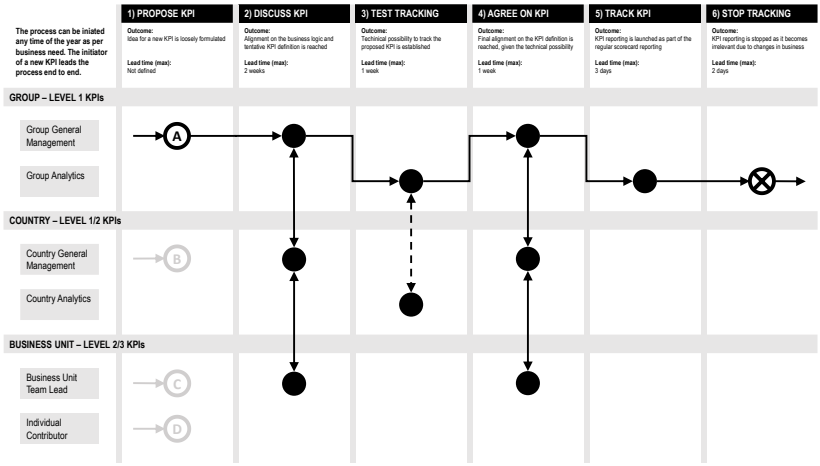
The major part of the discussion turned out to revolve around the clarification of the diagram. From this I learned that while a clean and tidy diagram helps the process participants understand the proposition and see a streamlined process with their own eyes, it may need to contain some textual clarifications. For example, one attendee was not sure what the difference between the two discussion stages was (Stage 2 and Stage 4), and why both were necessary. The other recalled their earlier proposal to merge the KPI

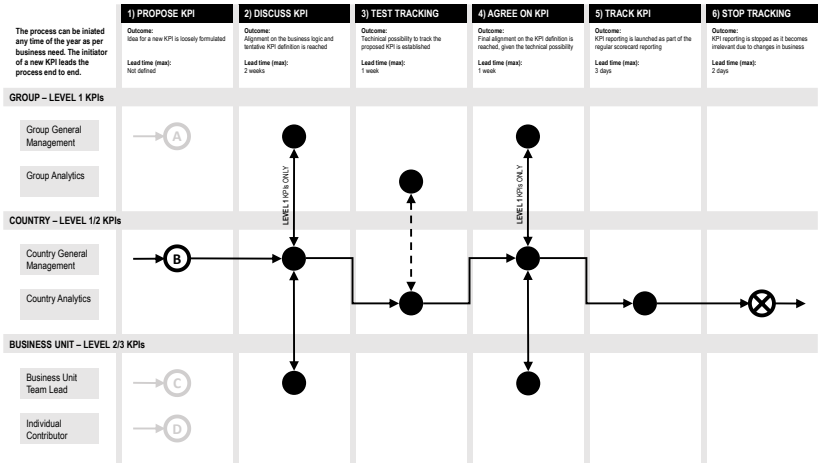
process and the budget process, to which another colleague responded that in reality new KPIs sometimes actually did emerge outside of the annual cycle, therefore there was no purpose in tying the KPI process to a fixed calendar slot or to the budget process; rather, it should indeed be possible to trigger the process at any date as per business need. Yet another colleague raised the concern that a KPI process as any other project should include concrete deadlines and deliverables; this was extended by another attendee who proposed to frame deadlines in terms of the number of days to completion. There was also some confusion about the name of Stage 4, "Automate"; the meeting attendees were not sure if it meant that KPI calculations would be automated, or that the data collection would be automated, because at the moment the metrics data were often collected and updated manually, especially during the revision process when new KPIs were being established. Finally, the question about the end-to-end responsible project manager, or the apparent lack of such in the diagram, triggered another explanation from my side that such project manager is in fact the one who initiates a new KPI.

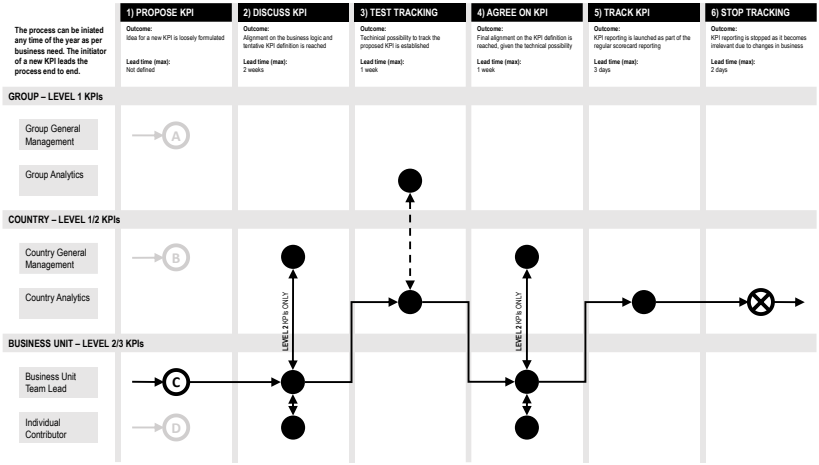
All this made me rethink my picture-purist way ("a picture is worth a thousand words") of describing a process. However, I was still confident that the diagram and the whole description should be kept down to one slide. Therefore, my solution was to include short and sharp textual clarifications in the diagram itself (see Figure 5.3).

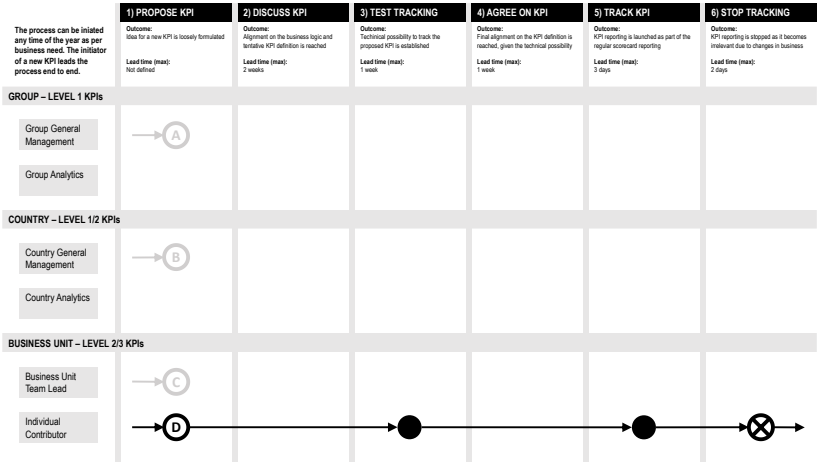
The first addition was the clarification of who drives the whole process (the initiator of a new KPI), and when the process can be initiated (any time), in the top left corner of the diagram. The second change was the renaming of Stage 4 from "Automate" to "Track KPIs", which adhered to the practice of partly automated and partly manual reporting of performance metrics. The third addition was the definition of outcomes (deliverables) and the timeframes for each stage in the process (from a few days to a few weeks), in the top part of the diagrams.

Figure 5.3. Second iteration of the new KPI revision process (updated based on feedback from business units)






The process can be iniated any time of the year as per business need. The initiator of a new KPI leads the process end to end.
1) PROPOSE KPI
Outcome: Idea for a new KPI is loosely formulated
Lead time (max): Not defined
2) DISCUSS KPI
Outcome: Alignment on the business logic and tentative KPI definition is reached
Lead time (max): 2 weeks
3) TEST TRACKING
Outcome: Technical possibility to track the proposed KPI is established
Lead time (max): 1 week
4) AGREE ON KPI
Outcome: Final alignment on the KPI definition is reached, given the technical possibility
Lead time (max): 1 week
5) TRACK KPI
Outcome: KPI reporting is launched as part of the regular scorecard reporting
Lead time (max): 3 days
6) STOP TRACKING
Outcome: KPI reporting is stopped as it becomes irrelevant due to changes in business
Lead time (max): 2 days
GROUP – LEVEL 1 KPIs
Group General Management
Group Analytics
COUNTRY – LEVEL 1/2 KPIs
Country General Management
Country Analytics
BUSINESS UNIT – LEVEL 2/3 KPIs
Business Unit Team Lead
Individual Contributor
A
B
C
D
LEVEL 2 KPI's ONLY
LEVEL 2 KPI's ONLY


The process can be iniated any time of the year as per business need. The initiator of a new KPI leads the process end to end.
1) PROPOSE KPI
Outcome: Idea for a new KPI is loosely formulated
Lead time (max): Not defined
2) DISCUSS KPI
Outcome: Alignment on the business logic and tentative KPI definition is reached
Lead time (max): 2 weeks
3) TEST TRACKING
Outcome: Technical possibility to track the proposed KPI is established
Lead time (max): 1 week
4) AGREE ON KPI
Outcome: Final alignment on the KPI definition is reached, given the technical possibility
Lead time (max): 1 week
5) TRACK KPI
Outcome: KPI reporting is launched as part of the regular scorecard reporting
Lead time (max): 3 days
6) STOP TRACKING
Outcome: KPI reporting is stopped as it becomes irrelevant due to changes in business
Lead time (max): 2 days
GROUP – LEVEL 1 KPIs
Group General Management
Group Analytics
COUNTRY – LEVEL 1/2 KPIs
Country General Management
Country Analytics
BUSINESS UNIT – LEVEL 2/3 KPIs
Business Unit Team Lead
Individual Contributor
A
B
C
D

As a part of all my interaction with stakeholders, I also aimed at learning about the existing organizational practices. In particular, I was interested to verify my assumptions about the "politically correct" approach to introducing change in this organization. I did it by asking the stakeholders about the most appropriate next steps that would be necessary to take to make the new process design a legitimate practice in the whole corporation. The attendees of this particular meeting recommended to "act through" the general managers of the local firm. Once a buy-in from the local general managers was ensured, they would take it up to their management at the corporate level and convince them that the change was necessary and beneficial. The buy-in of the local general management could be guaranteed once their subordinates and they themselves understood and supported the new process.

Third design iteration. Hence, the last step towards the approval at the country level was to present a process design proposition, which had been discussed with all other local stakeholders, to the general management. But before that, I presented my current draft (Figure 5.3) along with a supporting slide deck and project progress so far to the senior executive and the senior manager. They agreed that getting buy-in from general management was a top priority. As the new process seemed to address the employees' concerns well, their recommendation was only to craft the message by somewhat rearranging the slides (start from the problem and finish with a solution), organizing the initial findings and requirements into themes for an easier overview (see the result in Table 5.2), and rehearsing the presentation to fit into 15 minutes at most.

While working on the suggested improvements, I also redesigned the slides in line with corporate branding guidelines; summarized the most critical problems in the current process and the key features of the proposed solution; and added self-explanatory titles to diagrams to help the reader quickly identify the path ("A", "B", "C" or "D") that each diagram describes (see Figure 5.4). Finally, to justify the importance of the project, I conducted

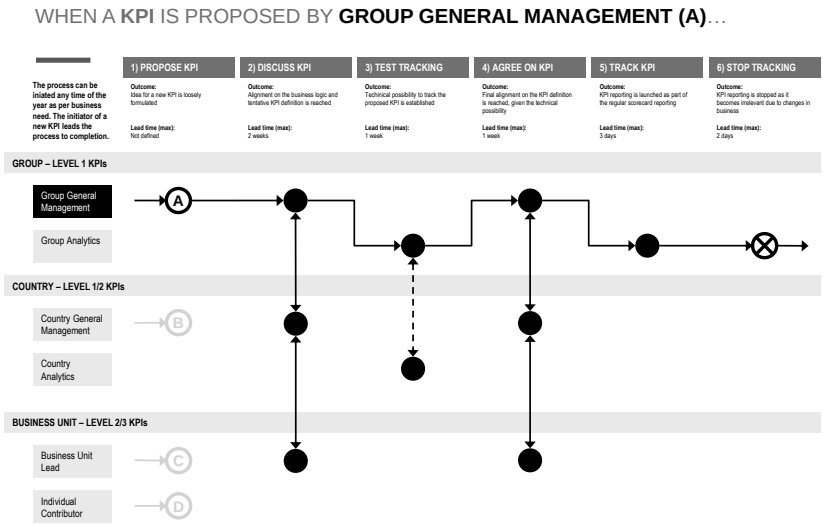
an employee survey and calculated the total number of man-hours spent by the organization during the recent KPI revision process, in effect building a business case for change that the local leadership can relate to, understand, approve, and support in front of corporate management.

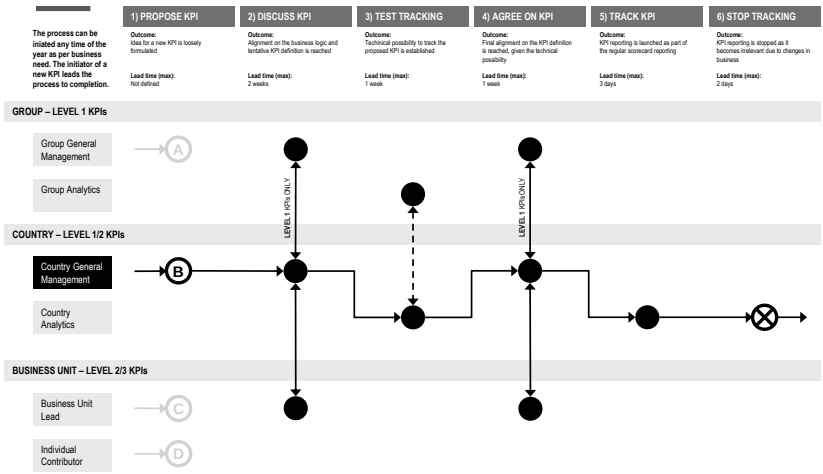
Fourth design iteration. The one-to-one meetings with general managers were very short and focused, compared to my previous interactions with the staff. Each meeting took about 15 minutes and consisted of my presentation of the problem and the solution, and a few clarifying questions and comments from management. The decision was unanimous: the management supported the new process design and suggested that the senior executive and the senior manager bring it up to their regional and corporate managers at headquarters.

The final iteration did not produce any changes in the design; rather, it paved a new trajectory for further action. In contrast to the business units' views, the general management was not going to "sell" the process to the corporate leadership. Instead, they encouraged the managers of the finance function, who are in charge of monitoring performance, to take the new process proposition to their direct corporate management, i.e. the regional and ultimately the group finance leadership.

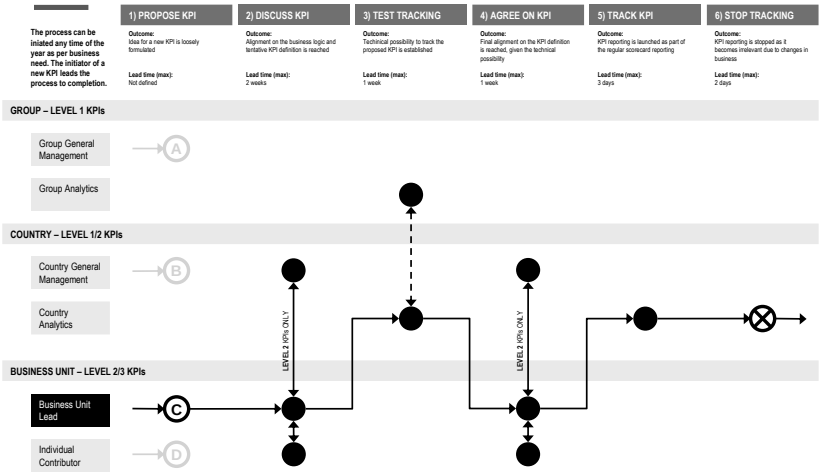
At this stage I as a researcher disengaged from the field. The problem situation had been thoroughly investigated, a solution had been found and discussed with stakeholders at the local subsidiary level, and the local organization had accepted the new process design. Its further implementation depended on the willingness of the firm to put it onto the corporate management's agenda and make the KPI revision practice a smooth process across all markets where the corporation runs business operations.

Figure 5.4. Third iteration of the new KPI revision process (updated based on feedback from project sponsors)

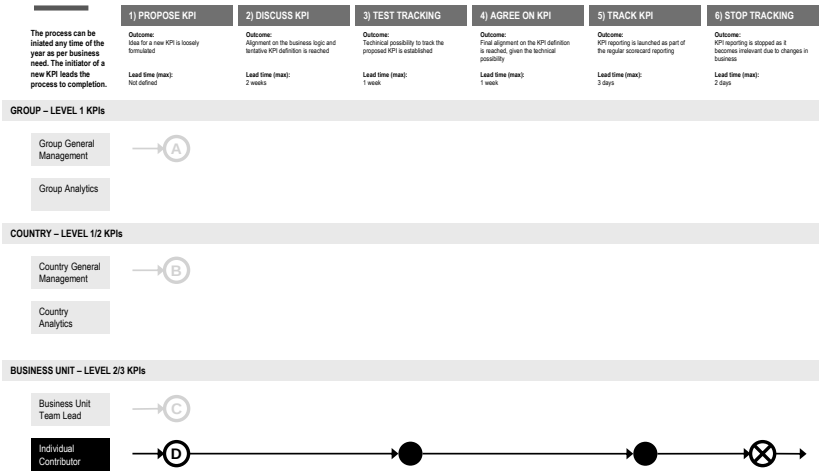




WHEN A **KPI** IS PROPOSED BY **BUSINESS UNIT LEAD (C)**…



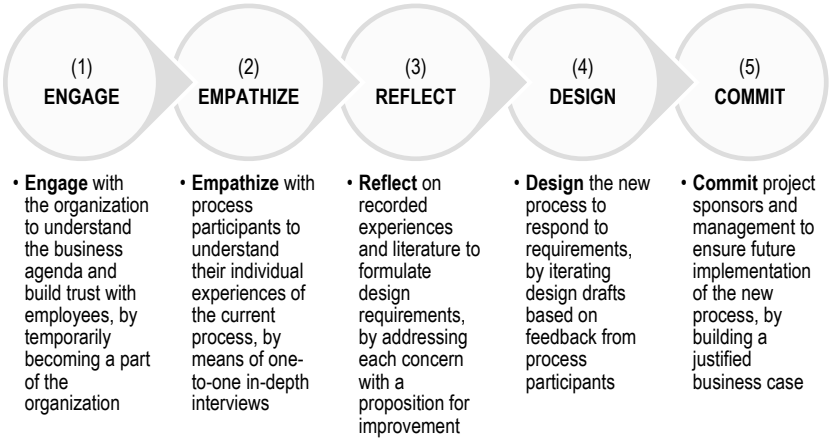
WHEN A **KPI** IS PROPOSED BY **INDIVIDUAL CONTRIBUTOR (D)**…



5.4.4. PHASE 4: FINAL REFLECTION AND GENERAL PROCESS DESIGN GUIDE

The inquiry described in this paper included four design cycles. In each cycle, I built on the premises of the prior cycle to plan artifact modifications and further steps in the inquiry process, acted on this plan by designing a next version of the artifact and subjecting it to the organization's evaluation, and finally reflected on the learnings to proceed into the next cycle. After these four cycles, I reached a stage when the new artifact design was accepted by the organization. This marked the completion of the *design* project at the local level of the multi-subsidiary corporation. For a design project to become a *design science* project, a truly "reflective practitioner" (Schön, 1983) would ask, "What have I learned through this design project?" This question sets the stage for the development of a normative guide, so that other organizations facing similar problems in similar contexts could use them to guide their actions.

Figure 5.5. Five-step guide to a "bottom up" approach to designing a new KPI revision process in a multi-subsidiary organization



From a bird's eye view, the process I myself as a process designer went through while creating a new KPI revision process can be described in five steps (see Figure 5.5). My role was not located at the level of management of the local organization, nor did I hold a position with the corporate headquarters. Rather, I acted as an external "researcher in residence" (Marshall *et al.*, 2014), with one leg in the local subsidiary of the organization and another at the university. As a result, the reflection on my own experience can produce guidance for action from a similar starting point, which can be called a "bottom-up" approach to process design.

While the initial problem was rooted in a KPI revision process, which is a management process in the firm's complete value chain (Porter, 1998: 43), the guide proposed here may be applicable to a broader set of process (re)design initiatives, but this will require further testing of the approach in other settings. The guide, however, does carry resemblance to a popular tried-and-tested practical design thinking approach (see e.g. Brown, 2008; Liedtka and Ogilvie, 2011), where the design process follows somewhat similar stages, thus hinting at the broader applicability of the guide. In the case here, however, the first phase of engaging with the organization by becoming a part of it (Step 1) and the last phase of facilitating the commitment of management (Step 5) seem to have been important for the success of this design project, but have been overlooked or not emphasized in the same way by the design thinking literature.

5.5. DISCUSSION AND CONCLUSION

This paper started with a relevant organizational problem and concludes with a solution proposal along with a more general guide for how this class of problems can be dealt with in other settings. The inquiry followed the methodological approach of design science research.

To be able to evaluate the quality of the research presented in this paper, we need to borrow useful knowledge from other domains due to the shortage of published design science research in management[4]. The discipline of information systems, where design science is used more widely (Cronholm and Göbel, 2015; Iivari, 2007), offers a set of seven guidelines for design science research; see Hevner *et al.* (2004). Should a software program serve as an analogy to a human system designed to achieve a goal, a business process can then be viewed as a programmed algorithm of human behavior; thus, a design of a human process can be seen as the "artifact" (in the information systems literature's terms). I am further going to compare my research to these guidelines in Table 5.2 below.

Table 5.3. Hevner *et al.*'s (2004) guidelines for design science research and their application in this paper

DSR guideline (Hevner *et al.*, 2004)	**Application in this paper**
Guideline 1: Design as an Artifact Design-science research must produce a viable artifact in the form of a construct, a model, a method, or an instantiation.	This paper produces a specific process design with indicated actors and their roles in the form of an algorithm ("instantiation" in the information systems literature's terms), as well as a practical normative guide for the development of similar processes in other contexts (method).
Guideline 2: Problem Relevance The objective of design-science research is to develop technology-based solutions to important and relevant business problems.	Since the search for a solution to the problem was warranted by the organization's management, whose staff had experienced a frustrating and time-consuming KPI development, the problem can be considered highly important and relevant to the business. The inquiry produced a "technological rule" in the form of a described process design that can be applied in similar problem situations.

[4] As evidenced by a Web of Science database search for management and business articles containing "design science" in title or abstract, as of June 2016.

DSR guideline (Hevner *et al.*, 2004)	**Application in this paper**
Guideline 3: Design Evaluation The utility, quality, and efficacy of a design artifact must be rigorously demonstrated via well-executed evaluation methods.	The ultimate evaluation of the artifact can happen after the new process design is adopted at the corporate level, e.g. by measuring the time spent in the process, and by employee satisfaction with the process flow. At the moment of writing the new process design has not been adopted yet. However, the new process has been co-developed and verified with all stakeholders at the local subsidiary by eliciting feedback on design drafts, which was the most appropriate evaluation method in this organizational context. The artifact is ready to be presented to corporate leadership for further verification with other subsidiaries and future implementation across the larger organization. While this would mark the completion of the development of the "alpha" version, other organizations could provide opportunities to refine the KPI revision process and its design guidelines to the "beta" version level.
Guideline 4: Research Contributions Effective design-science research must provide clear and verifiable contributions in the areas of the design artifact, design foundations, and/or design methodologies.	This inquiry has produced two artifacts (a process design and a normative guide for "bottom up" process design), which are novel for a particular organization. The design of such specific management process (KPI revision) has not been the focus of the extant literature, despite its importance to organizations operating in dynamic environments that urge them to constantly adjust their business model. Thus the reach of the contribution extends beyond the particular organization towards a class of problems it represents.
Guideline 5: Research Rigor Design-science research relies upon the application of rigorous methods in both the construction and evaluation of the design artifact.	The design of the KPI revision process (artifact as an instantiation) was informed by relevant theoretical insights from the literature on process innovation, performance management, and business models. These insights were formulated as theory-inspired design guidelines. Further, a thorough interviewing process was conducted with process participants to develop the requirements for a new process. The evaluation of the artifact was conducted as a series of discussions of design drafts with four groups of stakeholders – as one-to-one, smaller, and larger group meetings, which fit the specific organizational practices. The involvement of process participants in the design process ensured the organizational acceptance of the new design. Finally, the more general process (re)design guide (artifact as a method) has been produced as a reflection on the overall process of problem solving that the engaged researcher has experienced, and which has led to the successful organizational acceptance of the specific artifact instantiation.

DSR guideline (Hevner *et al.*, 2004)	**Application in this paper**
Guideline 6: Design as a Search Process The search for an effective artifact requires utilizing available means to reach desired ends while satisfying laws in the problem environment.	After the initial literature review, the elicitation of user requirements and the construction of the first version, the artifact was further developed iteratively through a series of four iterations. Each subsequent version was discussed with the users, and their feedback was implemented in the next version. Also, further steps in the design process were being corrected as a result of interactions with users. As the designing progressed, the falling number of change requests signaled that consensus was soon to be reached, and eventually indeed it was. Iterations through discussions, rather than e.g. surveys or co-creation workshops, satisfied the requirements of the specific organizational reality. The exact path that the design process was going to take was unknown at the beginning, thus prompting search activities as the process unfolded.
Guideline 7: Communication of Research Design-science research must be presented effectively both to technology-oriented as well as management-oriented audiences.	The outcome of the design process (a new KPI revision process) along with the technical information on the background of the problem and the conducted research activities was summarized in a short and focused 11-slide deck for management consumption and further decision-making. The local management and project sponsors were made aware of the content by means of personal presentations. The academic audience, as well as the broader practitioner audience, is being informed about the project and its outcomes through this research paper.

To sum up, the research produced in this paper largely complies with the seven design science research guidelines, given the specific context of the research setting. Yet, the solution developed through the inquiry here is not without its limitations.

The methodological approach of DSR produces context-specific solutions, the generalization of which is rather difficult although not impossible. The KPI revision process was accepted by the local organization, but the corporate management and other subsidiaries have not yet been made aware of the proposition at the moment of writing. A new corporate process cannot be fully implemented before the group management, as an active process participant and a stakeholder, accepts the new process and decides to comply with it. Further, all other subsidiaries should preferably be given the opportunity to voice their concerns and suggest improvements before the

new process comes in effect as a new institutionalized practice. Thus the two artifacts (a specific KPI revision process and a more general five-step design guide) developed and proposed here in fact should be seen as a pre-cursor to an "alpha" version of the final solution, to continue with the software development analogy. An alpha version of a solution to a management problem is the one tested with the same organization where the problem originated. Further testing with other organizations would mark the development of a "beta" version of the solution (van Aken, 2005; cf. Dolan and Mathews, 1993), and thus increase its transferability and usefulness potential.

Furthermore, the road towards the alpha version may produce changes, or at least some variation, in process designs, to accommodate for the cultural preferences of employees in other markets where the organization conducts its operations. The specific process and design guidelines were developed based on a local case. Other cultures may have other preferences in terms of participation and enjoyment of the process, and thus, for instance, the two discussion stages included in the KPI revision process may not seem as relevant to them. Likewise, the design guidelines that emphasize the development of a deep understanding of the process participants' experiences for the design of a new process that fits their needs may be seen as unnecessary and strange in an authoritarian culture that is used to following management orders without much questioning.

Despite these limitations, what have we learned for process innovation, performance management, and business model change as a result of this inquiry? The review of the three literature streams conducted at the beginning of the intervention was instrumental in formulating the four initial theory-inspired design guidelines. The subsequently conducted design project now invites to revisit the initial guidelines with a more nuanced understanding of what worked and how it worked.

Theory-inspired design guideline 1: An opportunity should be provided for all employees concerned to co-design the metrics during the development of KPIs.

The first design guideline stresses the importance of employee participation in the design process. While generally it seems like a good idea, it may not be entirely clear what kind of participation could work best. In the given organizational context, the involvement of the employees in KPI revision does seem important and desired, but it should not become overbearing, as evidenced by the insights from interviews. The employees would welcome an opportunity to propose new KPIs or give feedback to management's propositions, but the whole co-designing process cannot become too demanding and time-consuming (see requirements 2, 3, 5, 9, 13, 14 in Table 5.2). A balance must be found. A sense of this balance can be developed by an empathetic designer who would be attentive to the reactions of process participants to a range of proposed steps in the process (i.e. receiving a direct management command vs taking part in a long series of multi-stakeholder workshops, or a simple feedback provision at a meeting vs a longer co-design exercise in a workshop), like it was done in this project. Thus the case illuminates some the core principles of design thinking (Brown, 2008; Fraser, 2007; Liedtka, 2000), co-design (Sanders and Stappers, 2008), and participatory innovation (Buur and Matthews, 2008) by warning against the good intention of taking the involvement of stakeholders too far to the extreme where the designer may risk losing their interest in further participation.

Theory-inspired design guideline 2: A diversity of perspectives on the metrics to be measured should be ensured during the development of KPIs.

The literature suggests including a diverse set of metrics in the final balanced scorecard (Kaplan and Norton, 1992, 2007; Maltz *et al.*, 2003; Parmenter, 2007), which has been echoed by this study (see requirements 22, 24, 25, 27 in Table 5.2). The diversity of metrics has been addressed in the process design developed here by including all levels of the organizational

hierarchy as possible originators of new KPIs, and by implementing two stages of discussions among the corporate headquarters, country general management, and local business units. The purpose of these discussions is to produce the metrics that are relevant to the business and that are technically possible to track. Thus the diversity mentioned here, as exhibited in the case, effectively refers to the layers of hierarchy and functional orientation of the employees involved; other parameters of diversity have not been explored. This way, the research has reiterated the theory-inspired design guideline and elucidated the specifics of the diversity of perspectives.

> **Theory-inspired design guideline 3**: Ad-hoc revisions of KPIs should be built into the process that follows the initial development.

This guideline certainly seems important to take into account when designing a scorecard revision process in a dynamic industry, as recognized in the literature (Ahn, 2001; Dinesh and Palmer, 1998; Kaplan and Norton, 1996; Parmenter, 2007, 2015). However, all too many organizations are used to strategy planning processes that are driven by the calendar rather than the business need, as documented in a recent survey of 300 global executives (Judah *et al.*, 2016). This unfortunate practice can jeopardize the organization's ability to make timely strategic adjustments to address arising issues. The research here found only one of the interviewees voicing this concern (see requirement 21 in Table 5.2). When attention was drawn to the problem during a co-design meeting, another process participant remembered a few instances when KPIs actually needed to be changed outside of the annual cycle. Perhaps the mechanism here is that an unpleasant experience of the KPI revision process decreases the participants' willingness to take part in the process more often than absolutely necessary, that is once a year. This is how a real business need can regrettably be buried under the weight of a poorly designed process. Therefore, despite a somewhat weak attention to ad-hoc revisions in this particular organization, further design iterations should definitely not neglect this guideline.

The general process of the firm's strategic management cycle in line with this guideline would then go like this. First, management would monitor the performance through the current KPIs. Second, as deviations from the budget are recognized, management would immediately invite new initiatives to address the underperformance. Third, as some of the new initiatives might concern the logic of the business, new KPIs would be introduced through the process proposed in this paper. Finally, while the performance is being tracked through the new KPIs, another issue would arise demanding new initiatives and updated metrics, and so the cycle would go on.

> **Theory-inspired design guideline 4**: In a dynamic business environment, business model change as a potent approach to improving firm performance should be monitored by management.

The requirements for a better scorecard revision process, as discovered through the inquiry here, strongly argue for the increase of relevance of the final KPIs to the constantly evolving nature of the firm's business model (see requirements 21, 22, 26, 29 in Table 5.2). However, it should be noted that the business model as such has not necessarily been the focus of the organizational discourse around performance measurement. The business model reflects the firm's realized strategy (Casadesus-Masanell and Ricart, 2010), and it should be in the spotlight on management's agenda by being present on the scorecard. Nevertheless, creating a special process or a special scorecard for tracking only business model change, separately from other performance indicators, does not seem to make sense. Further, the indicators to be tracked can be highly varied across different industries, companies, and even local business units. There is no silver bullet metric that can be proposed here. It is up to the particular organization to choose the exact measures and to decide on the level of the scorecard where these measures should be placed and which management level should monitor the progress towards a new business model. The process design proposed in this paper offers a viable approach to finding and institutionalizing such KPIs.

5.6. IMPLICATIONS

The objective of this paper was to develop a prescriptive heuristic rule in the form of "if you want to achieve Y in situation Z, then do (something like) X" (van Aken and Romme, 2009; Huff *et al.*, 2006).

The specific problem situation that the focal firm faced was a way to cope with changing business conditions by drawing managers' attention to the key drivers of performance, where these very key drivers must be rethought and updated on a regular basis. Despite the importance of the problem, the process initiated by the corporate headquarters of the focal firm turned out rather hectic and disorganized and resulted in the production of KPIs of low usefulness to the actual everyday management of business units.

The two practical outcomes of the inquiry presented in this paper are (i) a KPI revision process that is more responsive to environmental changes and input from the business units, and (ii) a more general five-step guide for process (re)design that can be used to steer the design of KPI revision processes from the bottom up in other settings.

In line with the concept of a prescriptive heuristic rule, the practical guidance offered here implies that if the management wants better KPIs (and the circumstances of the firm fit the described), it is recommended that the process be established as proposed here. Further, if the KPI revision process needs to be adapted to the organization's specific circumstances (and the process designer finds himself in a similar starting point in a local subsidiary of a large organization), it is recommended that the more general five-step guide be followed. While this may not be a solution that will work in all cases, in the pragmatic tradition we can view it as the best available guidance.

For further research, one immediately obvious direction is to continue refining the general process design guide by using the same design science research methodological approach in other settings, for example, in other dynamic and also slower-paced industries, with organizations of a smaller and

larger size. Non-profit organizations and the public sector may be of interest too, where the former lack a profit motive and the latter is known for a highly political internal environment; and yet they need their activities to be rethought from time to time and their performance measured.

Furthermore, studies that would measure the state before the new KPI process is designed and implemented, and the state after such implementation, can be another interesting avenue for future research. The two states can be compared by the time it takes the organization to complete the creation of new KPIs, the experiences of employees involved in the KPI revision process before and after it is changed, and the management's evaluation of the resulting metrics included in the final scorecard. Less time spent and higher employee satisfaction with the process and the metrics would signal the success of the change. Additionally, the lower-level KPIs produced as a result of the new process can be statistically tested for correlation with some of the fundamental higher-level metrics such as revenue and profit and compared against the KPIs produced as a result of a different (earlier) process design, thus determining their capability to better predict performance and thus more firmly establishing their usefulness to the strategic management of the firm.

6. CONCLUSIONS

6.1. CONTRIBUTIONS

A number of practical problems in managing the process of business model innovation as well as gaps in the scholarly literature warranted this dissertation. The question that this dissertation specifically addresses is "How business model change can be tracked?" To answer this question, the dissertation as a collection of four papers first develops a conceptual view on the process of business innovation at established firms and then proceeds to take an outside and an inside perspective on the problematics involved in tracking business model change. Business model innovation here is viewed as one of the options available to managers to respond to environmental dynamism in the form of threats to status quo and/or new business development opportunities. Tracking business model change in turn may serve as valuable input to the process of strategic management of the firm, where the insights from monitoring the development progress of one's own firm and that of the competition may trigger further changes in the firm's responses on a strategic and tactical level, thus effectively creating an important feedback loop.

Since its early days, the fundamental questions of strategic management have been about the purpose, direction, choices, changes, governance, organization and performance of organizations in their industry, market and social, economic and political context (Pettigrew, Thomas, and Whittington, 2001). The discipline, which in its contemporary form dates back about half a century, has experienced a number of paradigm shifts over time. Strategy has evolved from its foundational rationalistic and planning view centered around the firm's own business policy (cf. Andrews, 1971; Ansoff, 1965; Chandler, 1962), to the outside-in view from the perspective of industry and the firm's position within it, influenced by industrial economics (Porter, 1980, 1985), to the mix of outside and inside views with the assistance of organizational economics, then back to the inside view, most notably through the crystallization of the resource-based view (Wernerfelt, 1984) and the concept

of core competencies (Hamel and Prahalad, 1994; Prahalad and Hamel, 1990). The alternative research stream on strategy that existed somewhat in parallel to the mainstream development of the discipline (that paid most attention to the content of strategy) has been that of strategy as a process (cf. Chakravarthy and Doz, 1992; Johnson, 1987; Mintzberg, 1978, 1990; Mintzberg and Waters, 1985; Pettigrew, 1985; Pettigrew, Ferlie, and McKee, 1992).

By adopting the distinctive process view of strategy (often deliberately labeled "strategizing" or "strategy making"), this dissertation effectively views business model innovation as a tool in the hands of managers who are strategizing/devising their next moves, a tool that is capable of facilitating the ongoing interaction between the environment and the organization and to help strategically steer the firm towards its objectives. Using this tool is not a one-off do-it-and-forget-it exercise; indeed, the business model has been acknowledged rather to be in a constant state of flux (Demil and Lecocq, 2010). Firms in dynamic industries with high levels of competition and change, which nowadays applies to an ever-increasing number of industries, in their quest to adopt more responsive organizational forms, as recommended by the ambidexterity literature (Duncan, 1976; March, 1991; Volberda, 1996), may find the guidance offered here especially relevant.

The papers included in the dissertation can be instrumental in the search of answers to some of the fundamental questions of strategy, such as those related to direction, choices, changes, and organization. The insights offered by the dissertation directly link into the practical strategizing cycle that firms typically go through during the year, i.e. planning longer-term development trajectories, devising tactical short-term initiatives, and tracking progress along the journey. The specific questions addressed by each paper (included as separate chapters in the dissertation) are:

- **Chapter 2: Business Model Innovation as a Process.** How can the process of business model innovation be conceptualized? What are the major factors inhibiting and facilitating the process?
- **Chapter 3: Tracking Business Model Change**. How can changes in the business model be tracked via public data sources?
- **Chapter 4: Trajectories of Business Model Change**. Which trajectories of business model change can management consider taking?
- **Chapter 5: Designing a Process for Tracking Business Model Change**. How can management track the progress of their own firm's evolution towards a new business model?

Chapter 2 tapped into the question of how a process of business model innovation can be thought of when a firm decides to pursue business model change, for example, as a response to environmental pressure or in pursuit of new lucrative business opportunities. Based on the insights from classic and more recent management literature, the paper conceptualized such a process as consisting of two iterative cycles of business model search and business model change. The chapter further identified the drivers and barriers respectively facilitating or inhibiting the process of business model renewal. The most essential factors influencing the successful discovery of a new business model are the ability to understand the environment, the presence of entrepreneurial people, the commitment of senior management, and the dedication of resources and funding. The success of business model change in turn is largely driven by the commitment of the firm's senior management, the involvement of the firm's middle management, the involvement of employees, the change implementation process, and new technology.

The proposed conceptualization of business model innovation extends the available literature in the following ways. First, when acquired, internalized and mastered, the competence to renew one's own business model becomes a rather specific example of a dynamic capability (Teece *et al.*, 1997) that allows the firm to achieve and maintain fit with the changing

business environment. Second, the view on business model innovation developed here is on a higher level than the previously proposed somewhat more detailed stage-gate and/or evolutionary life cycle models (cf. Bucherer *et al.*, 2012; Cavalcante *et al.*, 2011; Morris *et al.*, 2005; Siggelkow, 2002; Zott and Amit, 2015), and may therefore serve as an overarching unifier for the received variety of views. Finally, since the literature on the process of business model innovation is very new (Zott and Amit, 2015), the broad literature survey in adjacent streams makes a valuable contribution to this scarce literature by identifying the forces that can challenge or facilitate the process of business model innovation (cf. Chesbrough, 2010).

Chapter 3 developed an analytical technique which allows systematic capturing of business model changes from publicly available secondary data, such as a firm's reports, and further analysis of those data by applying tabulation and visualization techniques. This paper responded to previous calls in the literature, the lack of methodological guidance and sufficient disclosures of the qualitative data analysis process in the business models literature and in case studies in general. The paper further provided a review of contemporary approaches to studying business model change and argued for the sufficiency of publicly available secondary data to study patterns of business model change in public firms longitudinally and retrospectively.

The chapter responded to a long-standing call for the development of methods to study business model change (Pateli and Giaglis, 2004) and offered concrete methodological guidance to enable the analytical leaps normally surrounded by mystery in qualitative research (Eisenhardt, 1989b; Fiss, 2009; Miles and Huberman, 1984). The proposed technique builds on existing traditions of using secondary data and documents in social science research (Forster, 2006; Kuckartz, 2014; Scott, 2006) allowing to overcome informant memory and ex post rationalization biases traditionally associated with retrospective interview- and survey-based studies (Huber and Power, 1985) as well as to avoid issues with gaining access to "elite informants" (Kvale, 2007). Furthermore, the chapter offers an operationalization of the

activity-based view of the business model (Amit and Zott, 2001; Zott and Amit, 2007, 2010, 2013) by employing the value chain concept (Porter, 1985: 45–47) and the typology of business model change (Cavalcante *et al.*, 2011), thus effectively allowing to view the business model as a particular role that the focal firm chooses to play in the overall industry value chain. The value chain, however, should not be seen only as a linear and sequential progression of activities, but may certainly include activities conducted in parallel, thereby adopting a more modern view characteristic of today's networked business environment.

Chapter 4 invited managers to consider the following three strategic trajectories of change from the starting point of the existing (core) business model, when planning for growth: (i) enhancing the core business model, (ii) "unlocking the nucleus" inside the core business model, or (iii) expanding beyond the core business model. The first trajectory assumes adding complementary activities to provide complete customer experience. The second trajectory means commercializing the already conducted activities as separate products for new markets. The third trajectory stands for adding unrelated activities resulting in new products for new markets thus turning the firm into a multi-industry conglomerate. The second trajectory is quite a potent option which, especially when combined with the first trajectory, may help unlock new revenues while not departing very far from the current business activities, as the case study of Tesla Motors Inc. has demonstrated. This chapter contributes to the literature streams on business model innovation and high-growth firms, which do not seem to have intersected previously, thus leaving the growth stage of the firm development an unexplored venue in terms of business model changes.

The chapter employed the analytical technique developed in the preceding chapter thus subjecting it to a further test of ability to generate useful insights from publicly available secondary data. While positive links have previously been established between the business model and firm performance (Casadesus-Masanell and Ricart, 2010; Malone *et al.*, 2006; Zott

and Amit, 2007, 2008) and between business model innovation and competitive advantage (McGrath, 2010; Teece, 2010), our knowledge about which particular directions management can steer their firms' business model design efforts when planning for growth, is scarce. The whole stream of business model innovation is largely focused on startups, and more mature firms receive significantly less scholarly attention (Demil *et al.*, 2015). The case study of a rapidly growing firm presented here suggested three trajectories of business model change. Their link to revenue growth cannot be established with absolute certainty with the employed single case study methodological approach, but can be suggested.

The three trajectories are a valuable way to think about strategic change for managers and researchers, and they fill the void of particular significance in regard to how growing ventures can plan successful strategies (Phelps *et al.*, 2007). The fact that a business model can/needs to change during growth challenges conventional wisdom that would suggest that no changes to a working mechanism are necessary as long as it keeps generating revenue. Instead of seeking efficiency and predictability to scale up operations (Doz and Kosonen, 2008, 2010), management can also consider augmentation of the core business model during the growth stage.

The first trajectory, enhancing the core business model, is in line with existing research and corresponds to such processes as "business model extension" (Cavalcante *et al.*, 2011; Linder and Cantrell, 2000), "thickening" of the core element by new elaborating elements in the firm's activity system (Siggelkow, 2002), and developing "complementarities", i.e. bundling of activities (Zott and Amit, 2010). The same can be said about the third trajectory, expanding beyond the core business model, which is reminiscent of the "innovating outside the core" strategy (Bertels *et al.*, 2015). This trajectory has been found a lucrative choice for new revenue generation, which, however, needs to be executed with special care due to its unrelatedness to existing deeply embedded assumptions (Bertels *et al.*, 2015). The second trajectory, unlocking the nucleus inside the core business model,

has not been described in the literature. Finding and developing new product and market opportunities are generally known to characterize a growing firm (Cardozo *et al.*, 1993; Herbert and Deresky, 1987) and are not something entirely new, but the source of this new product's origin (i.e. within the already conducted activities), the potential effect on revenue growth, and the usefulness of this trajectory for the strategic management of the firm are rather astounding. Finally, the sequencing of the first and second trajectories offers a valuable extension of the findings by Cardozo *et al.* (1993) that growing firms exhibit "waves" of product market strategies. The present study shows that after unlocking the nucleus (roughly corresponding to a new product market combination) a firm may close it down and return to extending the core (roughly existing product in existing market). Extending the core in general may be expected to be the most common direction of business development, eventually leading to the appearance of a disruptor and the loss of market leadership due to the incumbent's natural focus on its most profitable customers (Christensen, 1997). The simultaneous application of the second (and perhaps also the third) trajectory in addition to the first may mitigate the risk of disruption and extend the firm's life span by enabling close contact with the broader and more diverse market for learning and diversification purposes.

Chapter 5 took an inside look at tracking business model change by adopting a proactive design science approach to design and verify with key stakeholders a fundamental management process of revising KPIs (key performance indicators), including those indicators related to business model change. The chapter proposed a general guide for such process design, which is applicable in similar settings, i.e. other multi-subsidiary global firms operating in dynamic industries. The decision-making process about which metrics to track affects what management's attention is focused on during the year. The rather streamlined process outlined here is capable of facilitating swift responses to environmental changes in local markets by establishing

new KPIs on an ongoing basis together with the business units on the ground, and thus is of key importance to strategic management of the firm.

The chapter's key contribution was in developing practical guidance for managers and consultants involved in the design and implementation of strategic management systems of control, such as balanced scorecards and other systems of key performance indicators. The project took inspiration from the available literature in process innovation, performance management and business model change to create two new artifacts, subsequently returning to the original theory with some new insights.

More specifically, the chapter extends the design thinking literature, which originated in the disciplines of product design and user experience design (see e.g. Brown, 2008), by developing a variation of the general approach for a special purpose application in strategic management, thus following in the footsteps of other authors who see the potential of design thinking in strategy (e.g. Fraser, 2007; Liedtka, 2000; Martin, 2009). Furthermore, the project elucidates the boundary of stakeholder participation (Buur and Matthews, 2008; Sanders and Stappers, 2008) in designing change by suggesting to adapt the process to the specific organizational realities, such as the means of interaction with stakeholders (online or offline, one-to-one or in group, shorter or longer meetings), the number of interactions with each stakeholder throughout the project (one, two or more), and the type of interaction during the meeting (interview, discussion of the prototype or prototype co-creation workshop).

In its real-life attempt to design a KPI revision process, the chapter also contributes to the literature on balanced scorecards that originated with the work of Kaplan and Norton (1992). Whereas the extant literature largely focuses on the initial development of scorecards, such as for example Ahn (2001), Butler *et al.* (1997) and Kaplan and Norton (1996), the proposition developed here starts with an existing set of KPIs that require modification as the business environment and the firm's responses change over time. The

guidance offered here is also different in the starting point of the design project, which is not at the headquarter level as implied by Parmenter (2007), but rather suggests a bottom up approach, that is, from the business units of a subsidiary up its general management and further up to headquarters to secure commitment. The proposed KPI revision process itself makes a case for a higher degree of collaboration between headquarters and business units in deciding on the metrics, which increases the relevance and usefulness of the resulting performance indicators to the local business units. It further invites reconsidering the currently prevailing practice of strategic planning based on calendar, rather than the actual business need (Judah *et al.*, 2016).

Finally, while the general focus of the dissertation is on tracking business model change rather than tracking all different kinds of changes, it should be recognized that separating "special" business model change initiatives from the multitude of other business development initiatives that a firm may be planning to implement, does not seem sensible. The business model reflects the firm's realized strategy (Casadesus-Masanell and Ricart, 2010), and its presence on the scorecard is enough to secure a place on management's agenda.

A summary of the major elements of each of the chapters is available in Table 6.1. In the pragmatist tradition, each paper is warranted by a practical problem. Further, gaps in the literature are identified and research questions are put forward. The answers to these questions are reached by applying certain research methods. Finally, contributions to the literature and implications for management practice and teaching are outlined.

Table 6.1. Summary of papers, contributions and implications

	CHAPTER 2: Business Model Innovation as a Process	**CHAPTER 3: Tracking Business Model Change**	**CHAPTER 4: Trajectories of Business Model Change**	**CHAPTER 5: Designing a Process for Tracking Business Model Change**
Practical problems	How to think of innovating the firm's business model in response to changes in the business environment What to be aware of in the process	How to collect and analyze public data on changes in a firm's business model	Which strategic directions of business model change to consider when planning for growth	How to track the progress of own firm's evolution towards a new business model
Gaps in the literature	Limited number of process studies in the emerging field of business model innovation	Lack of methodological guidance for studying business model change Some mystery surrounding the analytical process in case study research	Lack of studies addressing business model change during the growth stage of the firm's life cycle	Lack of normative guidance as to how to design a process of revising KPIs, including those related to business model change, in a dynamic business environment
Research questions	How can the process of business model innovation be conceptualized? What are the major factors inhibiting and facilitating the process?	How can changes in the business model be tracked via public data sources?	Which trajectories of business model change can management consider taking?	How can management track the progress of their own firm's evolution towards a new business model?
Methods	Systematic and expert literature review	Systematic literature review Design science (implicit)	Longitudinal retrospective exploratory case study	Design science research in real-life organization

	CHAPTER 2: **Business Model Innovation as a Process**	**CHAPTER 3:** **Tracking Business Model Change**	**CHAPTER 4:** **Trajectories of Business Model Change**	**CHAPTER 5:** **Designing a Process for Tracking Business Model Change**
Contributions to research	A conceptualization of the process of business model innovation as cycles of search and change A set of eleven propositions linking some of the most critical factors to the outcomes of the process	Review of contemporary approaches to studying business model change Argumentation for the use of secondary data as a sufficient source for tracking business model changes of public firms Detailed guidance on systematic data collection and processing to enable further analysis	Three strategic trajectories of business model change available for future empirical studies aiming e.g. to link them to performance outcomes	A new artifact – a key management process of revising KPIs on an ongoing basis in the context of a multi-subsidiary organization Methodological guidance on how such processes can be designed from the bottom up in other settings
Implications for practice	Guidance for how a process of business model innovation/ renewal can be thought of and structured An account of the forces at play in each stage of the process to increase the odds of successful completion of the process	Tracking the emerging strategies of competitors as input to own strategy making Benchmarking against the strategic peer group of firms Assisting to determine a strategic fit in mergers and acquisitions between the acquiring and the target firms	Three strategic trajectories of business model change as options to consider when planning for growth	A concrete proposition what a key strategic process of monitoring progress can look like Methodological guidance for the design of such processes in the other contexts

	CHAPTER 2: Business Model Innovation as a Process	CHAPTER 3: Tracking Business Model Change	CHAPTER 4: Trajectories of Business Model Change	CHAPTER 5: Designing a Process for Tracking Business Model Change
Implications for teaching	Clarification of each of the stages of the business model innovation process in established firms Visual illustration of the process of business model renewal Clarification of each of the factors influencing the process of business model renewal	Refinement of the activity-based view on the business model allowing students to see firms and their business models as bundles of nested processes Visual illustration of the link between changes in the firm's activities and the business model	Further clarification of how a change of the business model is different from a change in activity sets and activities Visual illustration of changes in activity sets and the business model Visual illustration of strategic trajectories of business model change A case study of a new technology-based firm's evolution in a mature industry	Showcase of the application of design science research approach, which is rather novel in management science Visual representation of process models and their evolution

6.2. FURTHER RESEARCH

No research is ever complete, and this dissertation is no exception. Each of the included studies exposed further avenues for investigations which I sketch out below.

The first paper (Chapter 2) invites investigations into the detailed manifestations of the drivers and barriers of business model innovation. Also, some of the factors may not have been covered given that the business models literature is an emerging field and the review paper borrowed from other literature streams. A significant area to address in future research is ways to minimize the influence of destructive forces (barriers) on successful business model renewal. The developed propositions serve as a good starting point for further research. An immediately obvious follow up study could frame the propositions as hypotheses and put them to statistical tests with the help of large sample surveys, linking the effects of factors to outcomes such as successful completion of projects and changes in financial performance. An additional, interesting direction of future research is the sequencing of the steps that managers, external consultants or inside business developers might take to mitigate the challenges associated with such a major transformation as business model innovation. Here, more interventionist approaches such as action research and design science could generate useful guidance. The conceptualization of the process of business model innovation has given a helicopter view of the two major stages involved (search and change), but some more elaborate step-by-step guides for a variety of industrial and organizational contexts can be further developed and refined.

The second paper (Chapter 3) proposes a methodological tool and, when applied to larger samples of the cases of business model change, paves the way for answering questions such as: What is the relationship between various business model change trajectories (involving a variety of configurations and sequences of activities) and firm performance? Do certain

activity sets in the business model act as complements, substitutes or redundancies? How does the sequencing of activity additions and removals vary from firm to firm, and what are the implications for performance? Why do business models of some firms change via similar trajectories while others evolve differently? Further explorations of various visual techniques to track business model changes would be helpful not only for facilitating analysis but also for education, management and consulting practice.

The third paper (Chapter 4) identified three strategic trajectories of business model change. These trajectories invite testing on broader samples of diverse firms and contexts to infer more general conclusions as regards the implications for firm performance. Which of the trajectories can lead to better financial performance? In which circumstances is it more beneficial to choose one growth strategy over another? Which of the strategies may be easier to implement for a particular firm (or a type of firms) given the multitude of drivers and barriers that can impact the outcome of the process? What are the outcomes of choosing to pursue some of the trajectories simultaneously for firm governance and performance? Future investigations could involve external stakeholders, such as partners, suppliers, key customers, and competitors to better understand the interactions of the three strategies in the marketplace; simulations may be of use here too. Further in-depth case studies may also illuminate the decision-making processes behind the decisions to add or remove specific activities and activity sets in the firm's business model. Finally, pragmatic guidance for the implementation of particular business model change plans, including the acquisition of the organizational buy-in, could be created in real-time studies through industry-research collaboration models such as embedding a "researcher in residence" in an organization at a crossroads facing multiple options and no clear strategic path forward.

The fourth paper (Chapter 5) develops a prescriptive heuristic rule as guidance for managers seeking to redesign their firm's KPI revision process, where business model change can be one of the indicators to track on

corporate and/or business unit scorecards. The design science research project developed a particular process design suitable for a multi-subsidiary organization operating in a dynamic industry, and a more general process guide to develop such processes in other settings. The artifacts, however, have been developed in one local subsidiary of the larger organization, and while there are reasons to believe that they would work well also for other subsidiaries and the corporate headquarters, the most obvious further research step is to further verify them with the remaining stakeholders, thus completing the development of the "alpha" version. To increase the certainty of successful acceptance and performance of the proposed KPI revision process in other, different organizational settings than the one described in the original study, further testing of the process design needs to be carried out on the way to a verified "beta" version. These different organizations may, for example, operate in slower-paced industries, feature different cultural compositions of staff, and employ dissimilar governance models, to name but a few characteristics that may be expected to influence the design of the scorecard revision process. Another interesting direction for future investigations could take an evaluative stance and address the effectiveness and efficiency of the new process after implementation by comparing the total time spent on KPI revision, employee satisfaction with the process, and the usefulness of the developed metrics for strategic management of the firm.

These are some of the most fruitful avenues for further research that I can see at the moment. Indeed, when one peak is conquered, a few other Everests emerge in the mist. After a short break, a new journey can begin.

REFERENCES

Abell DF. 1978. Strategic Windows. *Journal of Marketing* **42**(3): 21–26.

Abernathy WJ, Townsend PL. 1975. Technology, Productivity and Process Change. *Technological Forecasting and Social Change* **7**: 379–396.

Achtenhagen L, Melin L, Naldi L. 2013. Dynamics of Business Models - Strategizing, Critical Capabilities and Activities for Sustained Value Creation. *Long Range Planning* **46**(6): 427–442.

Ahn H. 2001. Applying the Balanced Scorecard Concept: An Experience Report. *Long Range Planning* **34**(4): 441–461.

van Aken JE. 2004. Management Research on the Basis of the Design Paradigm: The Quest for Field-Tested and Grounded Technological Rules. *Journal of Management Studies* **41**(2): 219–246.

van Aken JE. 2005. Management Research as a Design Science: Articulating the Research Products of Mode 2 Knowledge Production in Management. *British Journal of Management* **16**(1): 19–36.

van Aken JE, Romme G. 2009. Reinventing the Future: Adding Design Science to the Repertoire of Organization and Management Studies. *Organization Management Journal* **6**(1): 5–12.

Amit R, Zott C. 2001. Value Creation in E-business. *Strategic Management Journal* **22**(6–7): 493–520.

Amit R, Zott C. 2012. Creating Value Through Business Model Innovation. *MIT Sloan Management Review* **53**(3): 41–49.

Andrews KR. 1971. *The Concept of Corporate Strategy*. Dow Jones-Irwin Inc.: New York.

Ansoff HI. 1965. *Corporate Strategy: An Analytic Approach to Business Policy for Growth and Expansion*. McGraw-Hill Companies.

Argyris C. 1977. Double Loop Learning in Organizations. *Harvard Business Review* **55**(5): 115–126.

Arrighetti A, Lasagni A. 2013. Assessing the Determinants of High-Growth Manufacturing Firms in Italy. *International Journal of the Economics of Business* **20**(2): 245–267.

Aspara J, Hietanen J, Tikkanen H. 2010. Business Model Innovation vs Replication: Financial Performance Implications of Strategic Emphases. *Journal of Strategic Marketing* **18**(1): 39–56.

Atkinson PE. 1995. The Competitive Advantage: Speeding Up the Implementation of Change. *Management Services* **39**(7): 10–13.

Audia PG, Locke EA, Smith KG. 2000. The Paradox of Success: An Archival and a Laboratory Study of Strategic Persistence Following Radical Environmental Change. *Academy of Management Journal* **43**(5): 837–853.

Audretsch DB. 1995. Firm Profitability, Growth, and Innovation. *Review of Industrial Organization* **10**(5): 579–588.

Axelrod RH, Axelrod E, Jacobs RW, Beedon J. 2006. Beat the Odds and Succeed in Organizational Change. *Consulting to Management* **17**(2): 6–9.

Baden-Fuller C, Haefliger S. 2013. Business Models and Technological Innovation. *Long Range Planning* **46**(6): 419–426.

Baker T, Nelson RE. 2005. Creating Something from Nothing: Resource Construction Through Entrepreneurial Bricolage. *Administrative Science Quarterly* **50**(3): 329–366.

Bamiatzi VC, Kirchmaier T. 2014. Strategies for Superior Performance Under Adverse Conditions: A Focus on Small and Medium-Sized High-Growth Firms. *International Small Business Journal* **32**(3): 259–284.

Barnes K. 1985. Prediction, Planning, Prevention: Easing the Pain of Change. *Leadership & Organization Development Journal* **6**(4): i–iii.

Barnett WP, Freeman J. 2001. Too Much of a Good Thing? *Organization Science* **12**(5): 539–558.

Barrett DJ. 2002. Change Communication: Using Strategic Employee Communication to Facilitate Major Change. *Corporate Communications* **7**(4): 219–231.

Beekman A V, Robinson RB. 2004. Supplier Partnerships and the Small, High-Growth Firm: Selecting for Success. *Journal of Small Business Management* **42**(1): 59–77.

Beer M. 2001. How to Develop an Organization Capable of Sustained High Performance: Embrace the Drive for Results-Capability Development Paradox. *Organizational Dynamics* **29**(4): 233–247.

Bennett D, Forrester P, Hassard J. 1992. Market-Driven Strategies and the Design of Flexible Production Systems: Evidence from the Electronics Industry. *International Journal of Operations & Production Management* **12**(2): 25–35.

Berman SJ, Kesterson-Townes L, Marshall A, Srivathsa R. 2012. How Cloud Computing Enables Process and Business Model Innovation. *Strategy & Leadership* **40**(4): 27–35.

Bertels HM, Koen PA, Elsum I. 2015. Business Models Outside the Core: Lessons Learned from Success and Failure. *Research-Technology Management* **58**(2): 20–29.

Bertoni F, Colombo MG, Grilli L. 2011. Venture Capital Financing and the Growth of High-Tech Start-ups: Disentangling Treatment from Selection Effects. *Research Policy* **40**(7): 1028–1043.

Birch DL, Medoff J. 1994. Gazelles. In *Labor Markets, Employment Policy, and Job Creation*, Solomon LC, Levenson AR (eds). Westview Press: Boulder, CO: 159–167.

Birkinshaw J. 1998. Corporate Entrepreneurship in Network Organizations: How Subsidiary Initiative Drives Internal Market Efficiency. *European Management Journal* **16**(3): 355–364.

Blank S. 2005. *The Four Steps to the Epiphany: Successful Strategies for Products that Win*, 2nd ed. Cafepress.com.

Blank S. 2013. Why the Lean Start-Up Changes Everything. *Harvard Business Review* **91**(5): 61–70.

Blank S, Dorf B. 2012. *The Startup Owner's Manual: The Step-By-Step Guide for Building a Great Company*. K&S Ranch Inc.: Pescadero, CA.

Bock AJ, Opsahl T, George G, Gann DM. 2012. The Effects of Culture and Structure on Strategic Flexibility During Business Model Innovation. *Journal of Management Studies* **49**(2): 279–305.

Bockmühl S, König A, Enders A, Hungenberg H, Puck J. 2011. Intensity, Timeliness, and Success of Incumbent Response to Technological Discontinuities: A Synthesis and Empirical Investigation. *Review of Managerial Science* **5**(4): 265–289.

Bourreau M, Gensollen M, Moreau F. 2012. The Impact of a Radical Innovation on Business Models: Incremental Adjustments or Big Bang? *Industry and Innovation* **19**(5): 415–435.

Brege S, Brandes O. 1993. The Successful Double Turnaround of ASEA and ABB - Twenty Lessons. *Journal of Strategic Change* **2**(4): 185–205.

Brown T. 2008. Design Thinking. *Harvard Business Review* **86**(6): 84–93.

Bucherer E, Eisert U, Gassmann O. 2012. Towards Systematic Business Model Innovation: Lessons from Product Innovation Management. *Creativity and Innovation Management* **21**(2): 183–198.

Burgoyne J, James KT. 2006. Towards Best or Better Practice in Corporate Leadership Development: Operational Issues in Mode 2 and Design Science Research. *British Journal of Management* **17**(4): 303–316.

Burnes B, Jackson P. 2011. Success and Failure in Organizational Change: An Exploration of the Role of Values. *Journal of Change Management* **11**(2): 133–162.

Busi M. 2013. *Doing Research That Matters: Shaping the Future of Management*. Emerald Group Publishing Limited: Bingley, UK.

Butler A, Letza SR, Neale B. 1997. Linking the Balanced Scorecard to Strategy. *Long Range Planning* **30**(2): 242–153.

Buur J, Matthews B. 2008. Participatory Innovation. *International Journal of Innovation Management* **12**(3): 255–273.

Calia RC, Guerrini FM, Moura GL. 2007. Innovation Networks: From Technological Development to Business Model Reconfiguration. *Technovation* **27**(8): 426–432.

Cardozo R, McLaughlin K, Harmon B, Reynolds P, Miller B. 1993. Product-Market Choices and Growth of New Businesses. *Journal of Product Innovation Management* **10**(4): 331–340.

Casadesus-Masanell R, Ricart JE. 2010. From Strategy to Business Models and onto Tactics. *Long Range Planning* **43**(2–3): 195–215.

Casadesus-Masanell R, Ricart JE. 2011. How to Design A Winning Business Model. *Harvard Business Review* **89**(1/2): 100–107.

Cavalcante S. 2011. *A Process-Based View of Business Model Dynamics: An Exploratory Study*. Aarhus University.

Cavalcante S. 2012. Preparing for Business Model Change: The 'Pre-Stage' Finding. *Journal of Management & Governance* **18**(2): 449–469.

Cavalcante S, Kesting P, Ulhøi J. 2011. Business Model Dynamics and Innovation: (Re)establishing the Missing Linkages. *Management Decision* **49**(8): 1327–1342.

Chakravarthy B, Lorange P. 2008. Driving Renewal: The Entrepreneur-Manager. *Journal of Business Strategy* **29**(2): 14–21.

Chakravarthy BS, Doz Y. 1992. Strategy Process Research: Focusing on Corporate Self-Renewal. *Strategic Management Journal* **13**: 5–14.

Chan PS. 1993. Managing Successful Turnarounds: Lessons from Global Companies. *Management Decision* **31**(3): 29–33.

Chandler AD. 1962. *Strategy and Structure: Chapters in the History of the Industrial Enterprise*. MIT Press: Cambridge, MA.

Charmaz K. 2006. *Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis*. Sage Publications Ltd.

Chesbrough HW. 2006. *Open Business Models: How to Thrive in the New Innovation Landscape*. Harvard Business Review Press: Boston, MA.

Chesbrough HW. 2010. Business Model Innovation: Opportunities and Barriers. *Long Range Planning* **43**(2–3): 354–363.

Chesbrough HW, Rosenbloom RS. 2002. The Role of the Business Model in Capturing Value from Innovation: Evidence from Xerox Corporation's Technology Spin-off Companies. *Industrial and Corporate Change* **11**(3): 529–555.

Child J. 1972. Organizational Structure, Environment and Performance: The Role of Strategic Choice. *Sociology* **6**(1): 1–22.

Choi DY, Perez A. 2007. Online Piracy, Innovation, and Legitimate Business Models. *Technovation* **27**(4): 168–178.

Christensen CM. 1997. *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*. Management of Innovation and Change Series. Harvard Business Review Press.

Christensen KS. 2005. Enabling Intrapreneurship: The Case of a Knowledge-Intensive Industrial Company. *European Journal of Innovation Management* **8**(3): 305–322.

Clemons EK, Hann IH. 1999. Rosenbluth International: Strategic Transformation of a Successful Enterprise. *Journal of Management Information Systems* **16**(2): 9–27.

Colombelli A, Krafft J, Quatraro F. 2014. High-Growth Firms and Technological Knowledge: Do Gazelles Follow Exploration or Exploitation Strategies? *Industrial and Corporate Change* **23**(1): 261–291.

Cronholm S, Göbel H. 2015. Empirical Grounding of Design Science Research Methodology. In *New Horizons in Design Science: Broadening the Research Agenda: 10th International Conference, DESRIST 2015 Proceedings*, Donnellan B et al. (eds). Springer International Publishing: Dublin, Ireland: 471–478.

Cunneen DJ, Meredith GG. 2007. Entrepreneurial Founding Activities that Create Gazelles. *Small Enterprise Research* **15**(1): 39–59.

Cyert RM, March JG. 1963. *A Behavioral Theory of the Firm*. Prentice-Hall: Englewood Cliffs, NJ.

Dainty P, Kakabadse A. 1990. Organizational Change: A Strategy for Successful Implementation. *Journal of Business and Psychology* **4**(4): 463–481.

Danışman A. 2010. Good Intentions and Failed Implementations: Understanding Culture-Based Resistance to Organizational Change. *European Journal of Work and Organizational Psychology* **19**(2): 200–220.

Davenport TH. 1993. *Process Innovation: Reengineering Work Through Technology*. Harvard Business School Press.

Davenport TH, Short JE. 1990. The New Industrial Engineering: Information Technology and Business Process Redesign. *Sloan Management Review* **31**(4): 11–27.

Day G. 1993. New Directions for Corporations: Conditions for Successful Renewal. *European Management Journal* **11**(2): 229–237.

Demil B, Lecocq X. 2010. Business Model Evolution: In Search of Dynamic Consistency. *Long Range Planning* **43**(2–3): 227–246.

Demil B, Lecocq X, Ricart JE, Zott C. 2015. Introduction to the SEJ Special Issue on Business Models: Business Models Within the Domain of Strategic Entrepreneurship. *Strategic Entrepreneurship Journal* **9**(1): 1–11.

Desyllas P, Sako M. 2013. Profiting from Business Model Innovation: Evidence from Pay-As-You-Drive Auto Insurance. *Research Policy* **42**(1): 101–116.

Dinesh D, Palmer E. 1998. Management by Objectives and the Balanced Scorecard: Will Rome Fall Again? *Management Decision* **36**(6): 363–369.

Dixon S, Day M. 2010. The Rise and Fall of Yukos: A Case Study of Success and Failure in an Unstable Institutional Environment. *Journal of Change Management* **10**(3): 275–292.

Doganova L, Eyquem-Renault M. 2009. What Do Business Models Do? *Research Policy* **38**(10): 1559–1570.

Dolan RJ, Mathews JM. 1993. Maximizing the Utility of Customer Product Testing: Beta Test Design and Management. *Journal of Product Innovation Management* **10**(4): 318–330.

Donaldson L. 2000. Organizational Portfolio Theory: Performance-Driven Organizational Change. *Contemporary Economic Policy* **18**(4): 386–396.

Doz YL, Kosonen M. 2008. The Dynamics of Strategic Agility: Nokia's Rollercoaster Experience. *California Management Review* **50**(3): 95–118.

Doz YL, Kosonen M. 2010. Embedding Strategic Agility: A Leadership Agenda for Accelerating Business Model Renewal. *Long Range Planning* **43**(2–3): 370–382.

Duncan RB. 1976. The Ambidextrous Organization: Designing Dual Structures for Innovation. In *The Management of Organization Design*, Kilmann RH, Pondy LR, Slevin DP (eds). North-Holland: New York: 167–188.

Eisenhardt KM. 1989a. Making Fast Strategic Decisions in High-Velocity Environments. *Academy of Management Journal* **32**(3): 543–576.

Eisenhardt KM. 1989b. Building Theories from Case Study Research. *The Academy of Management Review*. Academy of Management **14**(4): 532–550.

Engel JS. 2011. Accelerating Corporate Innovation: Lessons from the Venture Capital Model. *Research-Technology Management* **54**(3): 36–43.

Feeser HR, Willard GE. 1990. Founding Strategy and Performance: A Comparison of High and Low Growth High Tech Firms. *Strategic Management Journal* **11**(2): 87–98.

Ferreira FNH, Proença JF, Spencer R, Cova B. 2013. The Transition from Products to Solutions: External Business Model Fit and Dynamics. *Industrial Marketing Management* **42**(7): 1093–1101.

Fiss PC. 2009. Case Studies and the Configurational Analysis of Organizational Phenomena. In *The SAGE Handbook of Case-Based Methods*, Byrne D, Ragin CC (eds). Sage Publications Ltd.: London: 415–431.

Forster N. 2006. The Analysis of Company Documentation. In *Documentary Research*, Scott J (ed). SAGE Publications: 83–106.

Fraser HMA. 2007. The Practice of Breakthrough Strategies by Design. *Journal of Business Strategy* **28**(4): 66–74.

Gagné M, Koestner R, Zuckerman M. 2000. Facilitating Acceptance of Organizational Change: The Importance of Self-Determination. *Journal of Applied Social Psychology* **30**(9): 1843–1852.

Galbraith JR. 1973. *Designing Complex Organizations*, 1st ed. Addison-Wesley Longman Publishing Co., Inc.: Boston, MA, USA.

Gambardella A, McGahan AM. 2010. Business-Model Innovation: General Purpose Technologies and Their Implications for Industry Structure. *Long Range Planning* **43**(2–3): 262–271.

George AL. 2006. Quantitative and Qualitative Approaches to Content Analysis. In *Documentary Research*, Scott J (ed). SAGE Publications: 135–160.

Gersick CJG. 1991. Revolutionary Change Theories: A Multilevel Exploration of the Punctuated Equilibrium Paradigm. *Academy of Management Review* **16**(1): 10–36.

Giesen E, Berman SJ, Bell R, Blitz A. 2007. Three Ways to Successfully Innovate Your Business Model. *Strategy & Leadership* **35**(6): 27–33.

Glaser BG, Strauss AL. 1974. *The Discovery of Grounded Theory*, 6th ed. Aldine Publishing Company: Chicago, IL.

Greenwood R, Hinings CR. 1988. Organizational Design Types, Tracks and the Dynamics of Strategic Change. *Organization Studies* **9**(3): 293–316.

Greiner LE. 1967. Successful Organizational Change: The Ingredients That Make It Stick. *Management Review* **56**(8): 48–54.

Grover V, Malhotra MK. 1997. Business Process Reengineering: A Tutorial on the Concept, Evolution, Method, Technology and Application. *Journal of Operations Management* **15**(3): 193–213.

Grover V, Teng JTC, Fiedler KD. 1993. Information Technology Enabled Business Process Redesign: An Integrated Planning Framework. *Omega* **21**(4): 433–447.

Gulati R, Nohria N, Zaheer A. 2000. Strategic Networks. *Strategic Management Journal* **21**(3): 203–215.

Guo H, Zhao J, Tang J. 2013. The Role of Top Managers' Human and Social Capital in Business Model Innovation. *Chinese Management Studies* **7**(3): 447–469.

Guthrie J, Abeysekera I. 2006. Content Analysis of Social, Environmental Reporting: What Is New? *Journal of Human Resource Costing & Accounting* **10**(2): 114–126.

Guthrie J, Petty R, Yongvanich K, Ricceri F. 2004. Using Content Analysis as a Research Method to Inquire into Intellectual Capital Reporting. *Journal of Intellectual Capital* **5**(2): 282–293.

Habtay SR. 2012. A Firm-Level Analysis on the Relative Difference Between Technology-Driven and Market-Driven Disruptive Business Model Innovations. *Creativity and Innovation Management* **21**(3): 290–303.

Hall J, Tochterman M. 2008. Persistence in Growth Versus Market Expectations. *Australian Journal of Management* **33**(1): 169–199.

Hamel G, Prahalad CK. 1994. *Competing for the Future: Breakthrough Strategies for Seizing Control of Your Industry and Creating the Markets of Tomorrow*. Harvard Business School Press: Boston, MA.

Hamel G, Prahalad CK. 2005. Strategic Intent. *Harvard Business Review* **83**(7–8): 148–161.

Hammer M. 1990. Reengineering Work: Don't Automate, Obliterate. *Harvard Business Review* **68**(4): 104–112.

Harry MJ. 1998. Six Sigma: A Breakthrough Strategy for Profitability. *Quality Progress* **31**(5): 60–64.

Hedberg B. 1981. How Organizations Learn and Unlearn. In *Handbook of Organizational Design*, Nystrom P, Starbuck W (eds). Oxford University Press: New York: 1–27.

Herbert TT, Deresky H. 1987. Generic Strategies: An Empirical Investigation of Typology Validity and Strategy Content. *Strategic Management Journal* **8**(2): 135–147.

Hernández-Mogollon R, Cepeda-Carrión G, Cegarra-Navarro JG, Leal-Millán A. 2010. The Role of Cultural Barriers in the Relationship Between Open-

Mindedness and Organizational Innovation. *Journal of Organizational Change Management* **23**(4): 360–376.

Hevner AR, March ST, Park J, Ram S. 2004. Design Science in Information Systems Research. *MIS Quarterly* **28**(1): 75–105.

Higgs M, Rowland D. 2011. What Does It Take to Implement Change Successfully? A Study of the Behaviors of Successful Change Leaders. *The Journal of Applied Behavioral Science* **47**(3): 309–335.

Hoag BG, Ritschard H V, Cooper CL. 2002. Obstacles to Effective Organizational Change: The Underlying Reasons. *Leadership & Organization Development Journal* **23**(1/2): 6–15.

Holm AB, Günzel F, Ulhøi JP. 2013. Openness in Innovation and Business Models: Lessons from the Newspaper Industry. *International Journal of Technology Management* **61**(3/4): 324–348.

Hookway C. 2015. Pragmatism. *The Stanford Encyclopedia of Philosophy*. Edward N. Zalta (ed.), The Metaphysics Research Lab, Center for the Study of Language and Information (CSLI), Stanford University.

Huang H-C, Lai M-C, Lin L-H, Chen C-T. 2013. Overcoming Organizational Inertia to Strengthen Business Model Innovation: An Open Innovation Perspective. *Journal of Organizational Change Management* **26**(6): 977–1002.

Huber GP. 2011. Organizations: Theory, Design, Future. In *APA Handbook of Industrial and Organizational Psychology, Vol 1: Building and Developing the Organization*, Zedeck S (ed). American Psychological Association: Washington, DC, US: 117–160.

Huber GP, Power DJ. 1985. Retrospective Reports of Strategic-Level Managers: Guidelines for Increasing Their Accuracy. *Strategic Management Journal* **6**(2): 171–180.

Huff A, Tranfield D, van Aken JE. 2006. Management as a Design Science Mindful of Art and Surprise: A Conversation Between Anne Huff, David Tranfield, and Joan Ernst van Aken. *Journal of Management Inquiry* **15**(4): 413–424.

IBM. 2006. *Expanding the Innovation Horizon: The Global CEO Study*. Somers, NY.

IBM. 2008. *The Enterprise of the Future: The Global CEO Study*. Somers, NY.

Iivari J. 2007. A Paradigmatic Analysis of Information Systems as a Design Science. *Scandinavian Journal of Information Systems* **19**(2): 39–64.

Isern J, Pung C. 2007. Driving Radical Change. *McKinsey Quarterly* (4): 24–35.

Jacobs CD, Heracleous LT. 2005. Answers for Questions to Come: Reflective Dialogue as an Enabler of Strategic Innovation. *Journal of Organizational Change Management* **18**(4): 338–352.

Jelinek M, Romme G, Boland RJ. 2008. Introduction to the Special Issue: Organization Studies as a Science for Design: Creating Collaborative Artifacts and Research. *Organization Studies* **29**(3): 317–329.

Jetter M, Satzger G, Neus A. 2008. Technological Innovation and Its Impact on Business Model, Organization and Corporate Culture – IBM's Transformation into a Globally Integrated, Service-Oriented Enterprise. *Business & Information Systems Engineering* **1**(1): 37–45.

Jick TD. 1995. Accelerating Change for Competitive Advantage. *Organizational Dynamics* **24**(1): 77–82.

Johnson G. 1987. *Strategic Change and the Management Process*. Blackwell Pub.

Judah M, O'Keeffe D, Zehner D, Cummings L. 2016. *Strategic Planning That Produces Real Strategy*.

Kanter RM, Ingols C, Morgan E, Seggerman TK. 1987. Driving Corporate Entrepreneurship. *Management Review* **76**(4): 14–16.

Kaplan RS, Norton DP. 1992. The Balanced Scorecard - Measures That Drive Performance. *Harvard Business Review* **70**(1): 71–79.

Kaplan RS, Norton DP. 1996. Using the Balanced Scorecard as a Strategic Management System. *Harvard Business Review* **74**(1): 75–85.

Kaplan RS, Norton DP. 2007. Using the Balanced Scorecard as a Strategic Management System. *Harvard Business Review* **85**(7–8): 150–161.

Kappelman LA, Prybutok VR, von Dran GM. 1996. Empowerment and Successful Management of an Organizational Change: The Case of a Bank Acquisition. *Management Research News* **19**(7): 23–36.

Keen C, Etemad H. 2012. Rapid Growth and Rapid Internationalization: The Case of Smaller Enterprises from Canada. *Management Decision* **50**(4): 569–590.

Kim D-J. 2007. Falls from Grace and Lessons from Failure: Daewoo and Medison. *Long Range Planning* **40**(4–5): 446–464.

Klein SM. 1994. Communication Strategies for Successful Organizational Change. *Industrial Management* **36**(1): 26–30.

Klinger D, Elam J, Sabherwal R. 1994. RyderFIRST: Facilitating a Turnaround in Ryder System's Consumer Truck Rental Division. *Journal of Strategic Information Systems* **3**(3): 236–253.

Koen PA, Bertels HMJ, Elsum IR. 2011. The Three Faces of Business Model Innovation: Challenges for Established Firms. *Research-Technology Management* **54**(3): 52–59.

Kotler P, Berger R, Bickhoff N. 2016. *The Quintessence of Strategic Management*, 2nd ed. *Springer*, Quintessence Series. Springer: Berlin, Heidelberg.

Kotter JP. 1995. Leading Change: Why Transformation Efforts Fail. *Harvard Business Review* **73**(2): 59–67.

Von Krogh G, Roos J. 1995. Conversation Management. *European Management Journal* **13**(4): 390–394.

Kuckartz U. 2014. *Qualitative Text Analysis: A Guide to Methods, Practice and Using Software*. SAGE Publications.

Kvale S. 2007. *Doing Interviews*. SAGE Publications, Ltd: London, United Kingdom.

Larson A. 1992. Network Dyads in Entrepreneurial Settings: A Study of the Governance of Exchange Relationships. *Administrative Science Quarterly* **37**(1): 76–104.

Lechner C, Dowling M. 2003. Firm Networks: External Relationships as Sources for the Growth and Competitiveness of Entrepreneurial Firms. *Entrepreneurship & Regional Development* **15**(1): 1–26.

Lee J, Hong YS. 2013. Business Model Mining: Analyzing a Firm's Business Model with Text Mining of Annual Report. In *International Conference on Engineering Design, ICED13*. Seoul, Korea: 1–10.

Levitt B, March JG. 1988. Organizational Learning. *Annual Review of Sociology* **14**: 319–340.

Levy S. 2011. Jeff Bezos Owns the Web in More Ways Than You Think. *Wired*. Available at: http://www.wired.com/2011/11/ff_bezos/all/1 [22 March 2015].

Lewis E, Romanaggi D, Chapple A. 2010. Successfully Managing Change During Uncertain Times. *Strategic HR Review* **9**(2): 12–18.

Li Y, Su Z, Liu Y, Li M. 2011. Fast Adaptation, Strategic Flexibility and Entrepreneurial Roles. *Chinese Management Studies* **5**(3): 256–271.

Liedtka J. 2000. In Defense of Strategy as Design. *California Management Review* **42**(3): 8–30.

Liedtka J, Ogilvie T. 2011. *Designing for Growth*. Columbia University Press.

Liedtka JM, Rosenblum JW. 1996. Shaping Conversations: Making Strategy, Managing Change. *California Management Review* **39**(1): 141–157.

Linder JC, Cantrell S. 2000. *Changing Business Models: Surveying the Landscape*. Working Paper, Accenture Institute for Strategic Change. Cambridge, MA.

Lindstrom G, Olofsson C. 2001. Early Stage Financing of NTBFs: An Analysis of Contributions from Support Actors. *Venture Capital* **3**(2): 151–168.

Littunen H, Tohmo T. 2003. The High Growth in New Metal-Based Manufacturing and Business Service Firms in Finland. *Small Business Economics* **21**(2): 187–200.

Löfsten H, Lindelöf P. 2003. Determinants for an Entrepreneurial Milieu: Science Parks and Business Policy in Growing Firms. *Technovation* **23**(1): 51–64.

Love PED, Gunasekaran A. 1997. Process Reengineering: A Review of Enablers. *International Journal of Production Economics* **50**(2–3): 183–197.

Magretta J. 2002. Why Business Models Matter. *Harvard Business Review* **80**(5): 86–92.

Malone TW *et al.* 2006. *Do Some Business Models Perform Better Than Others?* MIT Sloan Working Paper. Cambridge, MA.

Maltz AC, Shenhar AJ, Reilly RR. 2003. Beyond the Balanced Scorecard: Refining the Search for Organizational Success Measures. *Long Range Planning* **36**(2): 187–204.

March JG. 1988. *Decisions and Organizations*. Blackwell: New York, NY.

March JG. 1991. Exploration and Exploitation in Organizational Learning. *Organization Science* **2**(1): 71–87.

Markman GD, Gartner WB. 2002. Is Extraordinary Growth Profitable? A Study of Inc. 500 High-Growth Companies. *Entrepreneurship Theory and Practice* **27**(1): 65–75.

Marks ML. 2007. A Framework for Facilitating Adaptation to Organizational Transition. *Journal of Organizational Change Management* **20**(5): 721–739.

Markus ML. 2004. Technochange Management: Using IT to Drive Organizational Change. *Journal of Information Technology* **19**(1): 4–20.

Marshall M *et al.* 2014. Moving Improvement Research Closer to Practice: The Researcher-in-Residence Model. *BMJ Quality & Safety* **23**(10): 801–805.

Martela F. 2015. Fallible Inquiry with Ethical Ends-in-View: A Pragmatist Philosophy of Science for Organizational Research. *Organization Studies* **36**(4): 537–563.

Martin R. 2009. *Design of Business: Why Design Thinking is the Next Competitive Advantage*. Harvard Business Press.

Mason KJ, Leek S. 2008. Learning to Build a Supply Network: An Exploration of Dynamic Business Models. *Journal of Management Studies* **45**(4): 774–799.

McCabe D. 2010. Taking the Long View: A Cultural Analysis of Memory as Resisting and Facilitating Organizational Change. *Journal of Organizational Change Management* **23**(3): 230–250.

McGrath RG. 2010. Business Models: A Discovery Driven Approach. *Long Range Planning* **43**(2–3): 247–261.

Miles MB, Huberman M. 1984. *Qualitative Data Analysis: A Sourcebook of New Methods*. SAGE Publications Inc.: Beverly Hills, CA.

Miles RE, Coleman Jr HJ, Creed WED. 1995. Keys to Success in Corporate Redesign. *California Management Review* **37**(3): 128–145.

Miles RE, Snow CC, Meyer AD, Coleman Jr HJ. 1978. Organizational Strategy, Structure, and Process. *Academy of Management Review* **3**(3): 546–562.

Milne MJ, Adler RW. 1999. Exploring the Reliability of Social and Environmental Disclosures Content Analysis. *Accounting, Auditing & Accountability Journal* **12**(2): 237–256.

Mintzberg H. 1978. Patterns in Strategy Formation. *Management Science* **24**(9): 934–948.

Mintzberg H. 1990. The Design School: Reconsidering the Basic Premises of Strategic Management. *Strategic Management Journal* **11**(3): 171–195.

Mintzberg H, Waters JA. 1985. Of Strategies, Deliberate and Emergent. *Strategic Management Journal* **6**(3): 257–272.

Mitchell DW, Coles CB. 2004. Business Model Innovation Breakthrough Moves. *Journal of Business Strategy* **25**(1): 16–26.

Molinsky AL. 1999. Sanding Down the Edges: Paradoxical Impediments to Organizational Change. *The Journal of Applied Behavioral Science* **35**(1): 8–24.

Morris M, Schindehutte M, Allen J. 2005. The Entrepreneur's Business Model: Toward a Unified Perspective. *Journal of Business Research* **58**(6): 726–735.

Moyon G. 2010, June 29. Electric Carmaker Tesla Plugs into Wall Street. *Agence France Presse*.

Musk E. 2014. All Our Patent Are Belong To You. *Tesla Motors Blog*. Available at: http://www.teslamotors.com/blog/all-our-patent-are-belong-you [6 March 2015].

Nair S, Paulose H, Palacios M, Tafur J. 2013. Service Orientation: Effectuating Business Model Innovation. *The Service Industries Journal* **33**(9–10): 958–975.

NASDAQ OMX. 2013. Rules for Issuers of Shares. NASDAQ OMX Copenhagen A/S. Available at: http://www.nasdaqomx.com/listing/europe/rulesregulations/ [20 February 2014].

Nelson RR, Winter SG. 1982. *An Evolutionary Theory of Economic Change*. Belknap Press of Harvard University Press: Cambridge, MA.

Nelson T, Coxhead H. 1997. Increasing the Probability of Re-Engineering/Culture Change Success Through Effective Internal Communication. *Strategic Change* **6**(1): 29–48.

Nicholls-Nixon CL. 2005. Rapid Growth and High Performance: The Entrepreneur's 'Impossible Dream?' *Academy of Management Perspectives* **19**(1): 77–89.

O'Regan N, Ghobadian A, Gallear D. 2006. In Search of the Drivers of High Growth in Manufacturing SMEs. *Technovation* **26**(1): 30–41.

Object Management Group Inc. 2011. Business Process Model and Notation (BPMN) Version 2.0. Object Management Group Inc.

Ojiako U, Maguire S. 2008. Success Criteria for Systems Led Transformation: Managerial Implications for Global Operations Management. *Industrial Management & Data Systems* **108**(7): 887–908.

Orton JD, Weick KE. 1990. Loosely Coupled Systems: A Reconceptualization. *Academy of Management Review* **15**(2): 203–223.

Osterwalder A. 2004. *The Business Model Ontology: A Proposition in a Design Science Approach*. University of Lausanne.

Osterwalder A, Pigneur Y. 2010. *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. Wiley.

Osterwalder A, Pigneur Y, Tucci CL. 2005. Clarifying Business Models: Origins, Present, and Future of the Concept. In *Communications of the Association for Information Systems*, 16: 1–25.

Park S. 2011. The Effects of Entry Timing and Business Model Innovation on Performance: The Case of the Global MP3 Player Market. *Asian Journal of Technology Innovation* **19**(1): 133–147.

Parker SC, Storey DJ, van Witteloostuijn A. 2010. What Happens to Gazelles? The Importance of Dynamic Management Strategy. *Small Business Economics* **35**(2): 203–226.

Parmenter D. 2007. *Key Performance Indicators: Developing, Implementing, and Using Winning KPIs*, 1st ed. Wiley.

Parmenter D. 2015. *Key Performance Indicators: Developing, Implementing, and Using Winning KPIs*, 3rd ed. Wiley.

Pateli AG, Giaglis GM. 2004. A Research Framework for Analysing eBusiness Models. *European Journal of Information Systems* **13**(4): 302–314.

Pauwels K, Weiss A. 2008. Moving from Free to Fee: How Online Firms Market to Change Their Business Model Successfully. *Journal of Marketing* **72**(3): 14–31.

Penrose E. 1959. *The Theory of the Growth of the Firm*. John Wiley & Sons: New York.

Pettigrew A. 1985. *The Awakening Giant: Continuity and Change in Imperial Chemical Industries*. Oxford, Blackwell.

Pettigrew A, Ferlie E, McKee L. 1992. Shaping Strategic Change - The Case of the NHS in the 1980s. *Public Money & Management* **12**(3): 27–31.

Pettigrew AM, Thomas H, Whittington R. 2001. Strategic Management: The Strengths and Limitations of a Field. In *Handbook of Strategy and Management*, Pettigrew AM, Thomas H, Whittington R (eds). SAGE Publications: 3–30.

Phelps R, Adams RJ, Bessant J. 2007. Life Cycles of Growing Organizations: A Review with Implications for Knowledge and Learning. *International Journal of Management Reviews* **9**(1): 1–30.

Pohle G, Chapman M. 2006. IBM's Global CEO Report 2006: Business Model Innovation Matters. *Strategy & Leadership* **34**(5): 34–40.

Porter ME. 1980. Industry Structure and Competitive Strategy: Keys to Profitability. *Financial Analysts Journal* **36**(4): 30–41.

Porter ME. 1985. *Competitive Advantage: Creating and Sustaining Superior Performance*, 1st ed. Free Press: New York.

Porter ME. 1987. From Competitive Advantage to Corporate Strategy. *Harvard Business Review* (May-June): 43–59.

Porter ME. 1998. *Competitive Advantage: Creating and Sustaining Superior Performance*, 2nd ed. Free Press: New York.

Prahalad CK, Hamel G. 1990. The Core Competence of the Corporation. *Harvard Business Review* **68**(3): 79–91.

Prince C, Beaver G. 2001. Facilitating Organizational Change: The Role and Development of the Corporate University. *Strategic Change* **10**(4): 189–199.

Raelin JD, Cataldo CG. 2011. Whither Middle Management? Empowering Interface and the Failure of Organizational Change. *Journal of Change Management* **11**(4): 481–507.

Rajala R, Westerlund M, Möller K. 2012. Strategic Flexibility in Open Innovation - Designing Business Models for Open Source Software. *European Journal of Marketing* **46**(10): 1368–1388.

Ramanathan TR. 2009. The Role of Change Management in Implementing the Offshore Outsourcing Business Model: A Processual View. *Service Business* **3**(4): 341–358.

Ries E. 2011. *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses*. Crown Business: New York, NY.

Rojas CL. 2003. Managing a Successful Turnaround. Even in Tight Capital Market. *Financial Executive* **19**(6): 26–28.

Rose C. 2011. The Charlie Rose Show: Interview with Bob Lutz; Interview with Elon Musk. PBS: USA.

Sadler–Smith E, Hampson Y, Chaston I, Badger B. 2003. Managerial Behavior, Entrepreneurial Style, and Small Firm Performance. *Journal of Small Business Management* **41**(1): 47–67.

Sánchez P, Ricart JE. 2010. Business Model Innovation and Sources of Value Creation in Low-Income Markets. *European Management Review* **7**(3): 138–154.

Sanders EB-N, Stappers PJ. 2008. Co-creation and the New Landscapes of Design. *CoDesign* **4**(1): 5–18.

Sarasvathy S. 2008. *Effectuation: Elements of Entrepreneurial Expertise*. Edward Elgar Publishing.

Schein EH. 1993. How Can Organizations Learn Faster? The Challenge of Entering the Green Room. *MIT Sloan Management Review* **34**(2): 85–92.

Schneider S, Spieth P. 2013. Business Model Innovation: Towards an Integrated Future Research Agenda. *International Journal of Innovation Management* **17**(1): 1340001–1340034.

Schön D. 1983. *The Reflective Practitioner*. Basic Books: New York.

Schreyögg G, Sydow J. 2010. Organizing for Fluidity? Dilemmas of New Organizational Forms. *Organization Science* **21**(6): 1251–1262.

Scott J. 2006. Editor's Introduction. In *Documentary Research*, Scott J (ed). SAGE Publications: XIX–XXXIV.

Scott WR, Davis GF. 2007. *Organizations and Organizing: Rational, Natural and Open Systems*. Prentice Hall.

Segarra A, Teruel M. 2014. High-Growth Firms and Innovation: An Empirical Analysis for Spanish Firms. *Small Business Economics* **43**(4): 805–821.

Self DR, Schraeder M. 2009. Enhancing the Success of Organizational Change: Matching Readiness Strategies with Sources of Resistance. *Leadership & Organization Development Journal* **30**(2): 167–182.

Seo M-G. 2003. Overcoming Emotional Barriers, Political Obstacles, and Control Imperatives in the Action-Science Approach to Individual and

Organizational Learning. *Academy of Management Learning & Education* **2**(1): 7–21.

Siegel R, Siegel E, Macmillan IC. 1993. Characteristics Distinguishing High-Growth Ventures. *Journal of Business Venturing* **8**(2): 169–180.

Siggelkow N. 2002. Evolution Toward Fit. *Administrative Science Quarterly* **47**(1): 125–159.

Simmons G, Palmer M, Truong Y. 2013. Inscribing Value on Business Model Innovations: Insights from Industrial Projects Commercializing Disruptive Digital Innovations. *Industrial Marketing Management* **42**(5): 744–754.

Simon HA. 1960. *The New Science of Management Decision*. HarperCollins: New York, NY.

Simon HA. 1969. *The Sciences of the Artificial*. MIT Press: Cambridge, MA.

Sosna M, Trevinyo-Rodríguez RN, Velamuri SR. 2010. Business Model Innovation Through Trial-and-Error Learning. *Long Range Planning* **43**(2–3): 383–407.

Spieth P, Schneckenberg D, Ricart JE. 2014. Business Model Innovation - State of the Art and Future Challenges for the Field. *R&D Management* **44**(3): 237–247.

St-Jean E, Julien P-A, Audet J. 2008. Factors Associated with Growth Changes in 'Gazelles'. *Journal of Enterprising Culture* **16**(2): 161–188.

Strebel P. 1995. Creating Industry Breakpoints: Changing the Rules of the Game. *Long Range Planning* **28**(2): 11–20.

Tampoe M. 1990. Driving Organisational Change Through the Effective Use of Multi-Disciplinary Project Teams. *European Management Journal* **8**(3): 346–354.

Teal EJ, Upton N, Seaman SL. 2003. A Comparitive Analysis of Strategic Marketing Practices of High-Growth U.S. Family and Non-Family Firms. *Journal of Developmental Entrepreneurship* **8**(2): 177–195.

Teece DJ. 2010. Business Models, Business Strategy and Innovation. *Long Range Planning* **43**(2–3): 172–194.

Teece DJ, Pisano G, Shuen A. 1997. Dynamic Capabilities and Strategic Management. *Strategic Management Journal* **18**(7): 509–533.

Tesla Motors Inc. 2010. *IPO Prospectus*.

Tesla Motors Inc. 2014. *Form 10-K (Annual Report 2013)*.

Tesla Motors Inc. 2015. *Form 10-K (Annual Report 2014)*.

Tewari M. 1999. Successful Adjustment in Indian Industry: The Case of Ludhiana's Woolen Knitwear Cluster. *World Development* **27**(9): 1651–1671.

Thomas RJ. 1994. *What Machines Can't Do: Politics and Technology in the Industrial Enterprise*. University of California Press: Berkeley, CA.

Thompson JD. 1967. *Organizations in Action: Social Science Bases of Administrative Theory*. McGraw-Hill: New York, NY.

Tomczyk D, Lee J, Winslow E. 2013. Entrepreneurs' Personal Values, Compensation, and High Growth Firm Performance. *Journal of Small Business Management* **51**(1): 66–82.

Trifork A/S. 2008a. *Trifork A/S – Trifork iværksætter medarbejderaktieordning*. Aarhus.

Trifork A/S. 2008b. *Regnskabsrapport 1. halvår 2008*. Aarhus.

Trifork A/S. 2009. *Årsrapport 2008*. Aarhus.

Trifork A/S. 2010. *Årsrapport 2009*. Aarhus.

Unknown. 2006, August 22. Something very, very wrong is happening. I'm flying along the windy,... *The Guardian*.

Utterback JM, Abernathy WJ. 1975. A Dynamic Model of Process and Product Innovation. *Omega* **3**(6): 639–656.

Van De Ven AH, Poole MS. 1995. Explaining Development and Change in Organizations. *Academy of Management Review* **20**(3): 510–540.

Venable JR. 2006. The Role of Theory and Theorising in Design Science Research. In *Proceedings of the 1st International Conference on Design Science in Information Systems and Technology (DESRIST 2006)*: 1–18.

Volberda HW. 1996. Toward the Flexible Form: How to Remain Vital in Hypercompetitive Environments. *Organization Science* **7**(4): 359–374.

Wernerfelt B. 1984. A Resource-Based View of the Firm. *Strategic Management Journal* **5**(2): 171–180.

West MA, Hirst G, Richter A, Shipton H. 2004. Twelve Steps to Heaven: Successfully Managing Change Through Developing Innovative Teams. *European Journal of Work and Organizational Psychology* **13**(2): 269–299.

Whelan-Berry KS, Gordon JR, Hinings CR. 2003. The Relative Effect of Change Drivers in Large-Scale Organizational Change: An Empirical Study. *Research in Organizational Change and Development* **14**: 99–146.

Whelan-Berry KS, Somerville KA. 2010. Linking Change Drivers and the Organizational Change Process: A Review and Synthesis. *Journal of Change Management* **10**(2): 175–193.

Willemstein L, van der Valk T, Meeus MTH. 2007. Dynamics in Business Models: An Empirical Analysis of Medical Biotechnology Firms in the Netherlands. *Technovation* **27**(4): 221–232.

Williamson OE. 1979. Transaction-Cost Economics: The Governance of Contractual Relations. *Journal of Law and Economics* **22**(2): 233–261.

Winter SG. 1994. Organizing for Continuous Improvement: Evolutionary Theory Meets the Quality Revolution. In *Evolutionary Dynamics of Organizations*, Baum JAC, Singh J V. (eds). Oxford University Press: 90–108.

Witell L, Löfgren M. 2013. From Service for Free to Service for Fee: Business Model Innovation in Manufacturing Firms. *Journal of Service Management* **24**(5): 520–533.

Womack JP, Jones DT. 1996. *Lean Thinking: Banish Waste and Create Wealth in Your Corporation*. Simon and Schuster: New York.

Womack JP, Jones DT, Roos D. 1990. *The Machine That Changed the World: The Story of Lean Production: How Japan's Secret Weapon in the Global Auto Wars Will Revolutionize Western Industry*. Rawson Associates: New York.

Wright M, Hoskisson RE, Busenitz LW. 2001. Firm Rebirth: Buyouts as Facilitators of Strategic Growth and Entrepreneurship. *Academy of Management Executive* **15**(1): 111–125.

Wu J, Guo B, Shi Y. 2013. Customer Knowledge Management and IT-enabled Business Model Innovation: A Conceptual Framework and a Case Study from China. *European Management Journal* **31**(4): 359–372.

Yin RK. 2009. *Case Study Research: Design and Methods*, 4th ed. Applied Social Research Methods Series, v.5. Sage Publications.

Zhou KZ, Tse DK, Li JJ. 2006. Organizational Changes in Emerging Economies: Drivers and Consequences. *Journal of International Business Studies* **37**(2): 248–263.

Zott C, Amit R. 2007. Business Model Design and the Performance of Entrepreneurial Firms. *Organization Science* **18**(2): 181–199.

Zott C, Amit R. 2008. The Fit Between Product Market Strategy and Business Model: Implications for Firm Performance. *Strategic Management Journal* **29**(1): 1–26.

Zott C, Amit R. 2010. Business Model Design: An Activity System Perspective. *Long Range Planning* **43**(2–3): 216–226.

Zott C, Amit R. 2013. The Business Model: A Theoretically Anchored Robust Construct for Strategic Analysis. *Strategic Organization* **11**(4): 403–411.

Zott C, Amit R. 2015. Business Model Innovation: Toward a Process Perspective. In *Oxford Handbook of Creativity, Innovation and Entrepreneurship*, Shalley CE, Hitt MA, Zhou J (eds). Oxford University Press: Oxford, UK: 395–406.

Zott C, Amit R, Massa L. 2011. The Business Model: Recent Developments and Future Research. *Journal of Management* **37**(4): 1019–1042.