Chapter 2
Purpose of this Work and Research Approach

2.1 Current State of Research

2.1.1 Overview of Relevant Research Domains

There are three relevant broad research domains that provide the theoretical foundation for this work (see figure 2.1): The first domain, *environmental sustainability in business*, subsumes the tectonic forces that currently reshape the business world and also constitutes the underlying motivation for the writing of this monograph. The second domain is the concept of *business models* that was identified to be especially suited as a unit of analysis for the intended research work. The third domain is the broad field of research related to *organisations, change and innovation*. These topics are central to the transition from old, conventional business models to new, (more) sustainable ones.

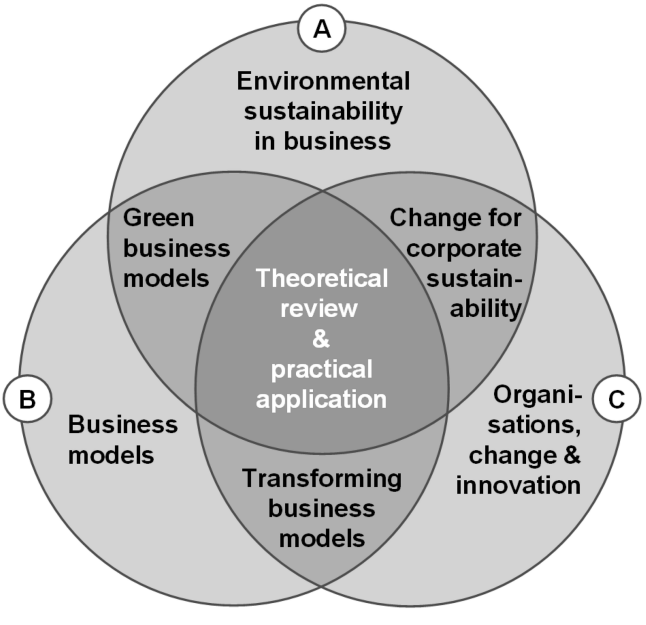

Fig. 2.1 Central research domains of this work

A. Sommer: Managing Green Business Model Transformations, SPLCEM, pp. 7–20.
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The three research domains, at whose intersection this publication aims to contribute, have very different histories and theoretical foundations that are briefly outlined in the following.

A: Environmental sustainability in business

There is a large body of research dealing with different aspects of environmental sustainability in business (research domain A, see figure 2.1). Generally, three dimensions of sustainability can be distinguished: the financial, the social, and the environmental aspect (Schaltegger & Wagner 2006a). Individual topics and the general view on the issue have shifted significantly over time: The "traditionalist", sceptic view of sustainability assumes that a higher sustainability performance corresponds to a lower economic performance of a company or industry. This view is reflected in Milton Friedman's famous essay with the telling title "The social responsibility of business is to increase its profits" (Friedman 1970). Consistent with this view, management and measurement of financial performance is the oldest and most advanced of the three dimensions (Schaltegger & Wagner 2006a). Social and environmental sustainability beyond legal compliance were mainly associated with voluntary, philanthropic activities at the periphery of business. However, social and environmental aspects are now more and more considered relevant for economic success in management literature. This led researchers to explore the so-called *business case for sustainability* (e.g., Schaltegger & Wagner 2006b). The shift towards expected tangible benefits from corporate sustainability efforts is easier achieved with respect to environmental issues (e.g., Amory et al. 1999; Hart 1995) compared to the harder to measure impact of social sustainability (Goddard 2006). Consequently, this work focuses on *environmental sustainability*.

Empirical evidence on whether environmental sustainability pays or not remains inconclusive to-date. Only few quantitative studies find a significant negative correlation. Although there is some evidence for a positive relationship, many studies find no significant relationship at all (Ambec & Lanoie 2007; Molina-Azorin et al. 2009). Disregarding the methodological issues of respective studies (see Ambec & Lanoie 2008), one conclusion that can be drawn from several decades of research in this field is that there is no simple correlation, let alone a simple causal link (Salzmann et al. 2005). Sustainability performance is difficult to operationalise (Porter & Kramer 2006) and the link is dependent on many factors, some of them company-specific (Lankoski 2000).

Case studies offer in-depth – albeit not necessarily generalisable – analyses for the factors that make environmental sustainability efforts profitable (Schaltegger & Wagner 2006a). Therefore, interviews with business managers from a broad range of industry sectors have been conducted to fill the knowledge gap from existing research.

B: Business models

As mentioned earlier, the business model concept became popular with managers, the media, and academia during the dot-com boom (Osterwalder 2004, 23). However, there is no theory of business models available yet; instead, there are "a myriad of concepts, ontologies and frameworks of business models all of which have merit, but none of which have been universally accepted" (Lambert 2006, 2). Although business models possess no long-established theoretical roots in economics or business research (Teece 2010), the concept is compatible with a number of theoretical frameworks in strategic management that are relevant to economic value creation (Amit & Zott 2001). The business model unites the resource-based view of the firm (e.g., Penrose 1959; Wernerfelt 1984; Barney 1991a) with that of the positioning perspective of the industrial organisation (e.g., Porter 1985; 1980). Moreover, the business model concept provides enough detail to relate to specific problems that may arise during large corporate transformations; yet it is not too detailed to obscure big picture issues. The business model concept has seen a revival in practical application, this time based on more structured foundations (e.g., Osterwalder & Pigneur 2010; Johnson 2010). Apart from analytical reasons, the great practical importance for company success of business model innovation (compared to isolated product or process-based innovations) is brought forward in favour of the concept (e.g., Johnson et al. 2008; Lindgardt et al. 2009). This means that instead of applying a narrow product- or process-based view, customer needs and functions that can satisfy them are (re-)considered broadly. Compatibility with strategic management concepts, analytical capabilities, and high practical relevance make business models an ideal unit of analysis for the purpose of this work.

One field of research in particular enables business models to serve as a valuable tool for analysis of complex management issues: system dynamics. System dynamics has been pioneered by Jay W. Forrester more than fifty years ago (see Forrester 2003) and is driven by the insight that some problems cannot be solved satisfactorily by traditional means of analysis, i.e. by dividing the problem into smaller pieces until each individual piece can be solved. Instead, dynamic interactions and feedback loops between the relevant system elements need to be considered holistically (Forrester 1958). In this context, *systems thinking* has been developed as a powerful analytical tool and is thus introduced in conjunction with business models. Addressable problems include many sustainability issues (Senge et al. 2008), as well as organisational challenges (Senge 1990). Hence, systems thinking principles will be used in various ways to facilitate successful Green Business Model Transformations.

C: Organisations, change, and innovation

Organisation research is a very large and heterogeneous field of research (Scherer 2002). However, respective organisation theories form the basis of the

transformation aspect examined in this work and are therefore considered in broad terms. Various systems perspectives of organisations exist - rational, natural, open systems (Scott 1992). The open systems view is particularly instructive as it emphasises the importance of interactions between organisations and their (changing) environments. Thus, both exogenous and endogenous change is relevant for this study. The former determines the setting within which corporations do business. This type of change is external and usually cannot be controlled by the company – rather it imposes change on it. Driving forces include changes of the natural environment and scientific understanding (e.g., climate science), as well as political and social forces (e.g., societal change, political movements, or consumer behaviour). The above-mentioned forces are considered a critical input to determine the economic justification of Green Business Model Transformations. However, what is at the centre of consideration of this publication is another aspect of change: the deliberate transformation of an organisation – also referred to as *organisational change*. *Change management* thereby refers to the managerial process of implementing organisational change. There are a multitude of change management models that may be applied. An early one is the "Unfreeze-Change-Refreeze" approach by Lewin (1951). Academics and practitioners have suggested a wide array of other approaches since then. Yet, owing to the great complexity and dynamism of organisations and their relationships with the external environment (Daft & Lewin 1990), prescriptive research on the topic is still far from being concluded.

When confronted with challenges and opportunities from inside or outside the organisation, companies can try to innovate and improve their competitive position. Innovation (pioneered by Schumpeter 1912) is considered both in the context of organisational factors and the external environment. Innovation is thereby not limited to product innovation like many executives seem to think (Linder et al. 2003, 44f.). For example, Sawhney et al. (2007) have identified 12 ways for companies to innovate, with new product or service offerings being only one of them. Furthermore, new technology is not a sufficient (or even necessary) condition for successful innovation. Rather, effective business models are key to successful innovation as they allow companies to extract economic value from technology (Chesbrough & Rosenbloom 2002). Thus, innovation related to business models (e.g., Johnson 2010) obviously receives special attention as well within this work. The same is true for innovation based on or leading to environmental sustainability (e.g., Fussler 1996; Fichter et al. 2006).

As illustrated in figure 2.1, the three research domains are overlapping. These intersections are adjacent to the topic of this publication and have attracted varying levels of attention by researchers.

A/B: Green business models

Literature that explicitly discusses business models for sustainability is still very rare (Stubbs & Cocklin 2008; Lüdeke-Freund 2009). However, there is research

that considers selected elements of business models in relation to sustainability issues (green products, consumers, processes, supply chains, etc.). Although these works inevitably lack the integrated view that a business model approach offers, they provide valuable insights for classifying and designing various forms of green business models.

In the absence of an existing taxonomy for green business models, it needs to be developed within this work. One requirement therefore is to provide a conceptualisation that provides the basis for the categorisation of real-world business models.

B/C: Transforming business models

A considerable number of researchers have dealt with the topic of switching from *old economy* to *new economy* business models; and many failures of such attempts are also well-documented (e.g., Markus & Benjamin 1997; Pinker et al. 2002; Weill & Broadbent 1998). Linder & Cantrell (2000) describe various types of business model transformations distinguished by the degree of change to the core logic. Furthermore, some literature on innovation relates to business models, although often focused on products and services only (e.g., Chesbrough & Rosenbloom 2002; Linder et al. 2003; Bjelland & Wood 2008). Authors have rarely addressed fundamental changes to business models as such; exceptions include the works of Voelpel et al. (2005), Johnson et al. (2008), and Lindgardt et al. (2009). Only recently, the two works of Osterwalder & Pigneur (2010; building on Osterwalder 2004) and Johnson (2010) address the practical challenge of transforming business models in a comprehensive way.

The business model concept does not solely focus on the organisation, but also considers external parties that participate in or benefit from the company's value creation activities. These external parties are not limited to suppliers or customers but also include various partners that need to be considered for any transformation effort. Consequently, literature on strategic networks (e.g., Doz & Hamel 1998; Gulati et al. 2000) is relevant, too. Moreover, other external parties that do not directly participate in the value creation process (e.g. competitors, NGOs, the public at large) cannot be ignored – at least not generally. Stakeholder management (e.g., Freeman 1984; Donaldson & Preston 1995) thus plays a vital role for many business model transformations. For didactic reasons, the relevant literature of stakeholder theory is reviewed in the context of sustainability in business.

A/C: Change towards corporate sustainability

Natural scientists and environmentalists have long warned that humanity's exploitation of natural resources and consumption patterns are not sustainable and need to be changed fundamentally (e.g., Meadows et al. 1972; WCED 1987; von Weizsäcker 1988; Daly & Cobb 1989; Hawken et al. 1999). Many of today's

business leaders have joined early environmentalists in their demand for far-reaching change to more sustainable business practices. Accordingly, the topic has gained popularity among researchers of strategic management, too (e.g., Hart 1995; Hart & Milstein 1999; Porter & van der Linde 1995b). In contrast, organisation theorists have been slower to address sustainability (Shrivastava 1994).

The move toward the mainstream had the positive effect that academia now deals with the topic in a more differentiated way, thus increasing the impact of the results: Early advocates for a change for sustainability often alienated practitioners by delivering one-sided success stories. Today, many works are much more balanced, emphasising also the risks and pitfalls of transforming business practices to be more sustainable (Esty & Winston 2009).

2.1.2 Research Gap

So far, there is a big void at the combined intersection of environmental sustainability in business, business models, and organisations, change and innovation. Current sustainability performance management techniques are well suited to minimise company risks and realise incremental improvements that are linked to economic value creation. However, these approaches only address isolated parts of business models. What is missing is how companies can systematically manage fundamental transformations of their business models to make them green – and profitable. These transformations may be implemented by visionary and environmentally proactive companies. But they may also be dictated to formerly passive companies by competition and changed market conditions. In both cases, such transformations are usually unprecedented events for these companies. Either the company is the first in its industry, and no company has done something similar before. Or, the company is following, but is still confronted with challenges unique to the company, including the question whether it can defy potential first mover advantages. Consequently, business model transformations are usually based on more or less substantiated beliefs of top management, and – due to a lack of appropriate frameworks – are treated as one-time initiatives that rely largely on ad-hoc management approaches.

This publication aims to fill that gap, both in terms of the lack of theoretical foundation as well as by providing a management framework that can be applied in practice. To give a first idea of the process of a Green Business Model Transformation, a simplified, schematic overview is presented in figure 2.2:

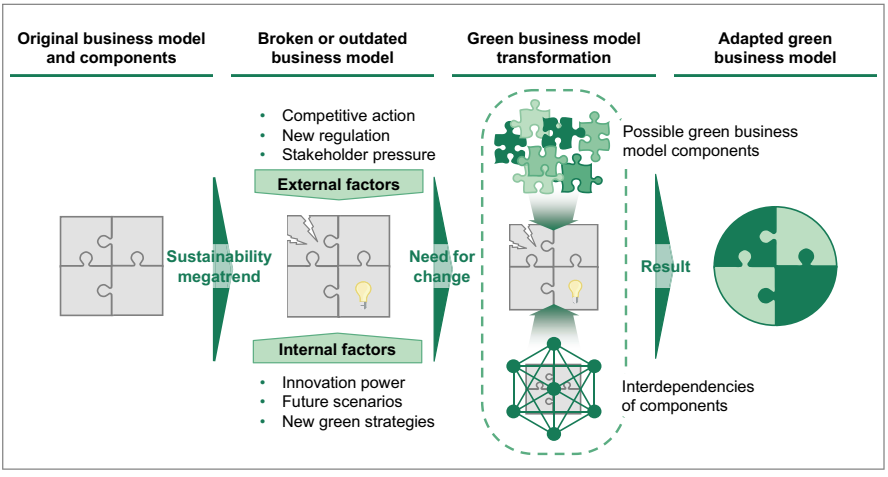

Fig. 2.2 Schematic overview of Green Business Model Transformations

2.2 The Central Research Question

The central research question is formulated as follows:

> ***"How can established companies successfully manage a fundamental transformation of their business model(s) based on green value propositions and value creation, thereby improving or sustaining economic performance?"***

The central research question contains a number of specifications that need clarification: Firstly, the motivation for the transformation is based on – or at least compatible with – economic interests, i.e. it does not serve philanthropic purposes. Hence, the new, green business model has to offer competitive financial long-term prospects compared to the previous, or alternative, conventional business model. In order to achieve this, the green characteristics of the new business model can relate to its value proposition, to the value creation, or often both.

Furthermore, this work focuses on established companies as opposed to start-ups, making the transformation aspect a key focus. This is further emphasised by the circumstance that fundamental transformations – not incremental adaptations – are examined.

The central research question leads to a number of related theoretical and practical sub-questions that need to be answered in order to deliver a comprehensive work on the issue:

Issues that relate the *theoretical basis* for Green Business Model Transformations:

- What is the general link between corporate environmental sustainability and the economic success of established companies?

- What are relevant environmental issues and how can they be addressed?
- What specific value creation levers does corporate environmental sustainability offer?
- How can business models be conceptualised and used systematically as a management tool?
- What constitutes a green business model?
- What are useful perspectives on organisational change that help to understand and manage Green Business Model Transformations in established companies effectively?
- How does (radical) innovation work in established companies?

Challenges that are to be addressed by an effective *management framework*:

- How do Green Business Model Transformations take place in practice?
- What managerial implications can be derived from practical experiences?
- How can companies evaluate the (future) fitness of their business models regarding sustainability issues and learn to appreciate opportunities offered by green business models?
- How can companies unleash the creativity of their employees or other parties in order to address environmental sustainability in a fresh, innovative way?
- How can ideas be translated systematically into viable green business models, despite complex first- and second-order effects on internal operations, on the market, on stakeholders?
- What tools, methods, and approaches for preparation and implementation are appropriate?
- What change management challenges are to be mastered during various stages of Green Business Model Transformations?
- How can be ensured that the new green business model – once implemented successfully – remains compatible with the company's strategy and sustains high fitness with respect to the competitive environment?

The questions above will all be addressed in the chapters that follow. However, due to the breath and heterogeneity of the topics related to the central research question, I will first define the scope of this work and clarify the used terminology.

2.3 Definition of Scope

2.3.1 Definition of the Term "Green" in this Work

Organisational changes concerning corporate environmental sustainability are often referred to as "turning green". The term "green" is used (and misused) in many ways in this context. It can even include social elements. For example, "green cosmetics" may refer to products that are produced free of chemicals (environmental, narrow sense of "green"), or under the rules of fair trade (broad sense of "green"). Because the terms "sustainable business model" and "business model

for sustainability" are too broad in scope, the still somewhat fuzzy but very intuitive term "green business model" is used instead. The study will focus on the narrow, environmental definition of "green" and consider other aspects of sustainability only if they are part of an inseparable, collective green value proposition. Non-profit or philanthropy-based activities that are unrelated to the core business are not in scope.

2.3.2 Types of Corporations in Scope

Corporations that are *established* players in their respective markets are in focus. Schaltegger (2002) categorises companies according to their environmental positioning in a matrix with the following two dimensions:

- Priority of environmental issues as a business goal ("core" vs. "supplementary" vs. "trustee duty")
- Market effect of business ("alternative scene" vs. "eco-niche" vs. "mass market")

Hence, companies under consideration are active in the mass market and move (or have moved) towards "green" being a core element of their business model. This relates to the position of companies labelled "Ecopreneurs", a portmanteau word combining "ecological" and "entrepreneur". However, only companies that are already established in the mass market are addressed in this work; out of scope are newly founded companies that aim to reach widespread dissemination of their products and services in the future (as their journeys tend to be very different in nature). Moreover, the scope is not limited to companies with products whose function is to protect or restore the environment (e.g., pollution control products). Even companies from environmental "vice" industries (like oil firms) are relevant as long as they transform their business models in a way that is fundamentally different from their less green peers. No focus in terms of industry sector or similar is set as many sustainability issues span across industry borders. Restricting industry scope would also reduce the sample of relevant study objects too much. However, observed systematic differences between certain types of companies (e.g., consumer vs. industrial goods companies) will be considered as necessary.

2.3.3 Green versus Conventional Business Models

The distinction between green and non-green business models can be difficult in practice: Some companies already apply advanced business practices to minimise their environmental impact, but do not call themselves "green". Other firms, by and large, continue with their previous practices that do not represent an especially strong environmental performance level, but now put a green label on them as part of corporate communications activities (see Economist Intelligence Unit 2008b). Even if adequate criteria were available to determine and compare the environmental performance of companies objectively, it would still often be a matter of degree of "greenness". More fundamentally, the question touches upon the very

foundation of how sustainability is understood (Ehrenfeld 2005). Depending on the underlying understanding of sustainability the business models that qualify as green differ greatly. Hence, an important task of this work will be to clarify the concept of (environmental) sustainability and subsequently develop a taxonomy of green vs. non-green business models upon it (see chapter 5).

There is a big difference between "greening" a conventional business model and transforming a business model into a green one. The former will bring about incremental change and make existing operations converge to a local environmental optimum (Hart & Milstein 1999). The latter form of change seeks a radical new way of doing business.

A simplified interim classification based on the degree of radicalness of change can be used to clarify the scope of this work until the formal definition of green business models is presented in chapter 5. Four cases are distinguished for this purpose (see figure 2.3): (1) *Green Evolution* (small routine improvements), (2) *Isolated Green Adaptation*, (3) *Staged Green Transformation*, and (4) *Green Revolution* ("big bang" approach).

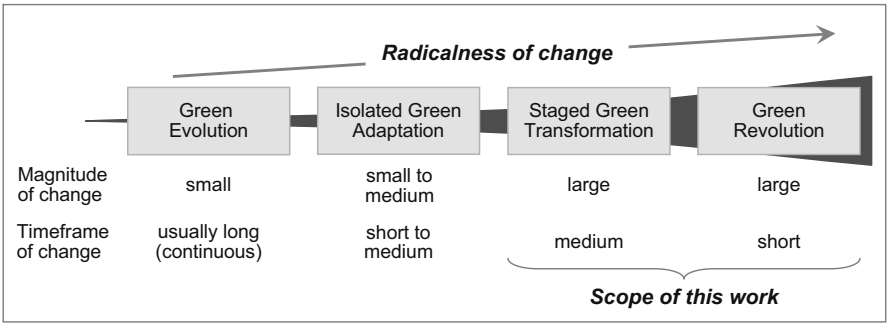

Fig. 2.3 Different degrees of change distinguished by radicalness

Only Staged Green Transformations and Green Revolutions are in scope – the former two cases would just be considered as part of a larger programme that fundamentally transforms major business model elements. The following two criteria may be used in order to identify transformations that are in scope:

- The magnitude of (green) change: the scope of change affects a considerable part of the company (e.g. in terms of share of revenue of the affected parts of the company), and the depth of change is substantial, i.e. significant non-green parts of the business model are transformed to become green.
- The timeframe of change: major change tends to happen rapidly in the considered cases – within months or a couple of years for large-scale green revolutions (from planning to realisation), or possibly a few years for staged green transformations.

A Green Business Model Transformation does not necessarily have to happen organically. Ilinitch & Schaltegger (1995) propose a framework for an ecologically-oriented portfolio analysis that is based on an adapted BCG portfolio matrix,

complemented by a third, environmental impact dimension. As a result of such an analysis, companies may decide to sell "dirty cash cows" or buy companies with green business models to bring the overall portfolio more in line with the company's new green strategy. However, this approach is only of interest for the purpose of this work if respective M&A activity is part of a larger strategic programme.

Lastly, one complication that also needs to be dealt with in the context of green business models is the possible systemic effects that they may have beyond the direct sphere of influence of the company. For instance, a principally green business model may – ceteris paribus – lead to a sharp increase of consumption of green products that offsets all relative environmental performance gains of the business model.

2.3.4 Analytical Focus Regarding the Transformation Process

A Green Business Model Transformation can be divided into various distinct phases conceptually, although the process will never follow a pure sequential pattern in reality. In the context of the business case for sustainability, for example, Steger (2006, 440) distinguishes four main steps that are analogous to that of the transformation process under examination:

1. "Identifying issues" (opportunities, need for change)
2. "Building the business case" (justification and planning of the proposed transformation)
3. "Implementing the business case" (execution of the transformation)
4. "Monitoring and controlling"

Due to the involved magnitude of change, all four phases are especially delicate compared to "ordinary" environmental initiatives and therefore need to be thoroughly considered by companies. However, implementation entails similar characteristics to any large-scale business transformation and monitoring and controlling are similar to common financial and environmental performance management practices. Therefore, stronger emphasis will be put on earlier phases of Green Business Model Transformations in this work. As will be laid out in chapter 9, a more detailed framework with respect to these tasks is appropriate compared to the example above. As a result, a six-phase approach is proposed.

2.4 Structure of this Work

Figure 2.4 summarises the structure of this book. It is divided into four parts: After the introduction, the second part constitutes the theoretical foundation. Relevant fields of research are reviewed and related to the various aspects of the central research question. The third part draws upon short case studies ("vignettes") of Green Business Model Transformations and extends the theoretical part towards a framework for management practice. Finally, a short conclusion and future outlook is provided.

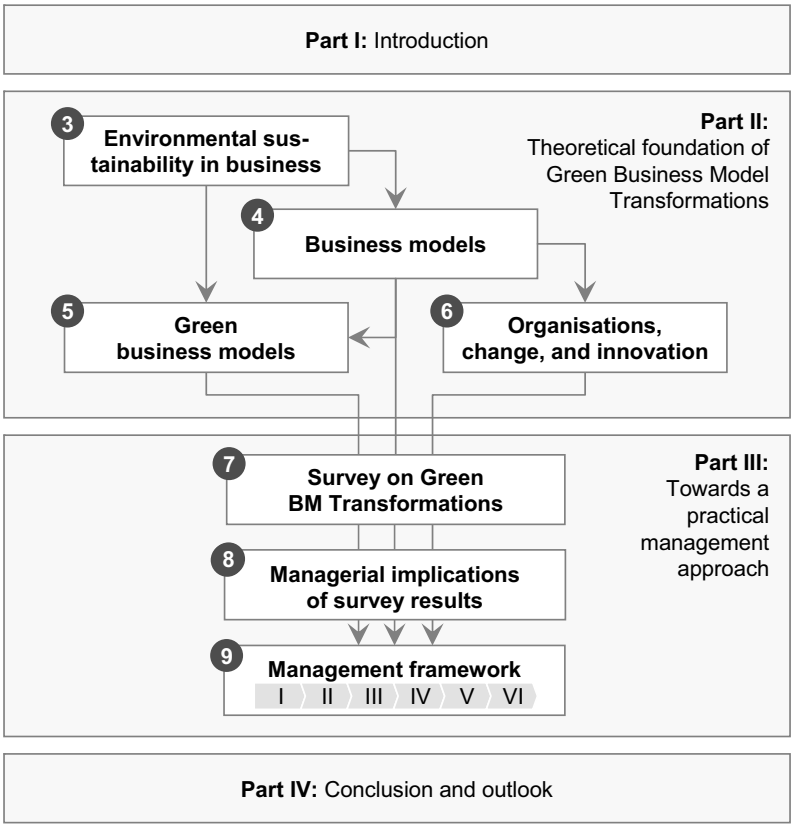

Fig. 2.4 Structure of this work

Due to the broad and heterogeneous theoretical foundation of this work, integrating the respective fields of research is a formidable challenge. One of the few commonalities across all research domains is the applicability of the systems perspective: Organisations can be viewed as systems, sustainability can be considered a systemic phenomenon, and the business model concept explicitly appreciates systemic characteristics in the business context. Hence, the systems perspective will be a recurring theme throughout the theoretical review of existing literature within chapters 3 through 6 (**Part II**).

Chapter 3 outlines the relevance of environmental sustainability in business, both as a management task, and with respect to its link to the economic success of the company. Important environmental issues are placed into the context of corporations and their stakeholders. The chapter closes with the appreciation of possible corporate environmental strategies.

Chapter 4 introduces and defines the concept of business models. Business models are delineated from business strategy and operations, their generic elements are discussed. Furthermore, the systems perspective and its importance for

business models are explained. A brief discussion of change methodologies and evaluation measures for business models follows.

Chapter 5 presents a taxonomy for green business models. Drawing upon existing taxonomies for business models in general, four types of business models are proposed based on their aggregated environmental impact. Finally, practical application of the taxonomy and a number of Green Business Model Prototypes are presented.

Chapter 6 addresses organisation theory. Theoretical perspectives on organisational change are reviewed and put into context with the challenge of Green Business Model Transformations. Change management strategies and existing prescriptive approaches for management practice are examined. The last part of the chapter deals with relevant aspects of innovation theory.

Part III starts with **chapter 7**, which complements the synthesised theoretical perspectives from the previous chapters with seven case vignettes, i.e. brief, instructive analyses of business situations. Each vignette highlights different aspects of Green Business Model Transformations. The question why some companies or industries have not (yet) considered such transformations is also investigated. Taken together, the vignettes provide a rich survey on Green Business Model Transformations. The chapter closes with an evaluation of the environmental performance of the described green business models.

Chapter 8 explains the managerial implications based on the gathered industry examples and related theoretical work. Both static and dynamic implications are discussed on different levels (industry, business model, individual company). Furthermore, five ideal-type corporate journeys towards green business models are distilled from the survey.

Chapter 9 contains a major contribution of this publication: the framework for management practice. It is divided into six phases: (I) Embracing ambiguity; (II) Rethinking old certainties; (III) Translating into business impact; (IV) Planning for action; (V) Making it happen; (VI) Finding new signals. For each phase, the problem context is explained and change management challenges are discussed. Moreover, specific management tools and advice for suitable courses of action are provided.

Part IV concludes with a recapitulation of the contributions of this work, discusses its limitations and possibilities for future research.

2.5 Research Approach for the Practical Part

The case vignettes in chapter 7 are used to validate and illustrate the conceptual work throughout the book. A wide variety of companies from different industries have been examined based on publically available documents such as newspaper and journal articles, company websites and reports. Most importantly, dozens of company representatives have been interviewed in order to extract the key learnings from the cases. Moreover, industry and functional experts from The Boston Consulting Group have been consulted. Not only did this sharpen the focus on key

issues for the company interviews, but discussions with these consultants also helped to increase the validity of information and opinions gathered with respect to biases of interviewees.

Investigated firms include recognised sustainability leaders as well as firms from industries that have not yet produced serious attempts of Green Business Model Transformations. Study subjects were selected based on the proposition that possible forms of green business models will vary by industry sector, and depend on characteristics of the company (e.g., ownership structure, culture, organisational capabilities). Preferably, at least two firms per industry sector have been studied in order to avoid false generalisations about industry-specific characteristics. Industries that are covered in the seven vignettes include food and packaged consumer goods, lighting, building services, chemicals, airlines, shipping, automobiles, and industrial conglomerates. For a full list of interviewees see Appendix 1: List of interviews. Moreover, transcripts of interviews conducted on sustainability in business by the MIT Sloan Management Review and BCG during 2009 (see Berns et al. 2009a, 34ff.) have been considered, albeit not explicitly.

The possibility of conducting a management survey was dismissed because of its very limited potential contribution to the central research question. First, some recent surveys (e.g., Economist Intelligence Unit 2008b; Berns et al. 2009b; Haanæs et al. 2011) with similar foci are already available. Second, and more importantly, the most critical questions not covered in previous surveys are difficult to pose in survey format due to the complex causality of sustainability in business that often depends on context and requires follow-up questions.

Hence, semi-structured interviews have been conducted instead. They were loosely based on a case study protocol (e.g., Yin 2003, 67ff.) (see Appendix 2: Case study protocol excerpt). The interviews have not been recorded and transcribed for the following two reasons: First, due to the high sensitivity of the required information (e.g., strategic plans and decisions, opinions about customers, competitors, or certain parts of the own organisation) many interviewees would not have accepted recording. Second, even if an interviewee had agreed to record the interview, an important share of information would likely have been held back in this case. In fact, on several occasions, interviewees insisted that some statements must not show in the text of this publication. Although these parts of the interviews have obviously not been included – at least not explicitly – they were often crucial for understanding certain important aspects of business models and motives for management decisions.