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BUSINESS MODELS IN THE CIRCULAR ECONOMY

Concepts, Examples and Theory

Roberta De Angelis

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Roberta De Angelis
University of Exeter
Exeter, UK

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To my father and my grandmother.
I feel that they have never ceased to be on my side. With their lives they taught me generosity, determination and spirit of sacrifice: three precious gifts that have assisted me during my life.

Foreword

We have no long-term future unless we can reorganise ourselves to live within our ecological boundaries, and this necessitates a conversion of our economic system from one based on a linear pattern of materials use to another that is cyclical. Fortuitously, in the last decade, the concept of the circular economy has become more mainstream, with the UK Government including it as an objective in its new industrial strategy published at the end of 2017. Accordingly, this requires the debate to move on from *what* needs to be done to *how* it can be achieved. Reconfiguring materials use towards a cyclic system is a convoluted challenge. It is likely to be achieved through an evolutionary progression, with people, policies and organisations who explore circular potential changing the economic landscape and thus offering new challenges and opportunities to others.

The involvement of businesses in finding a path through is crucial because of their immense influence on resource use. Nevertheless, while many firms recognise the ecological boundaries of our existing system, they can find it difficult to work out how to develop new ways of doing business that encourage a shift towards a circular economy. They need new business models that let them create value in a manner which encourages the regeneration of resources.

Very little has been written yet in the academic literature on business strategy for advancing the circular economy. Consequently, this book has significant worth in making a start in occupying this big space. It creatively takes ideas from the practitioner literature on the circular

economy and explores how these can be effectively affiliated with the academic literature on business models and business strategy. Thereby, it begins to lay down foundations for a more effective theoretical discourse, as well as playing a part in bringing clarity to the business community on how circular business models can bring prosperity to both them and the planet.

Exeter, UK

Julie Whittaker
Honorary Associate Research Fellow
University of Exeter Business School

Preface

Nowadays, the scale of the ecological and social crises has reached unprecedented levels and multiples are the voices demanding significant, societal-wide investments in change to invert this trajectory. In relation to how to address environmental problems more effectively, this book is neither about macro, system-level approaches nor about micro, individual responsibilities. Rather it is focussed on corporations and the role they might perform in the transition towards a more environmentally friendly economy. Corporate efforts have mostly reduced negative impact and consequently, they are demanded to do 'more'. In this respect, pertinent questions are: what exactly is 'more'? And, has it to find inspiration in the concepts of sustainable development and corporate sustainability? Despite the fact that sustainable development is a concept in vogue since the late 1980s and corporate sustainability initiatives have been proliferating, this book believes that the answer to these questions is to be found somewhere else. Particularly, in an emergent and more powerful model for an economy that works within ecological limits, which is already motivating pioneering innovators across the globe to fundamentally rethink their business practices, and is known as 'the circular economy'.

By proposing more resource-efficient industrial processes that mirror the cyclical functioning of the eco-system where the concept of waste does not exist, the implementation of the circular economy could have significant positive impact on production and consumption systems and circular economy thinking is gaining consensus across business, policy and academic circles. The role of corporations in the circular

economy model is central since a crucial constituent in the achievement of such an economy is business model innovation. However, while there is some evidence of circular business models elements, categories, strategies, frameworks, canvases and archetypes within academic and practitioner literature, the concept of the circular business model is not clearly understood, with potential negative consequences for theory building and practical implementation. In addition, the theoretical understanding of circular business models appears very limited to date. Hence, this book contributes to the literature at the intersection between the circular economy and business models by elaborating a set of propositions leading to a preliminary conceptualisation of the circular business model, which can be considered a stepping stone towards clarity and theory building in the relevant literature. It also investigates the theoretical foundations of circular business models in relation to the rationale for adopting them. The key themes and conceptual frameworks used in this book are derived from academic and practitioner literature on the circular economy as well as from the business model, strategic management and neo-institutional literature. The conceptual themes are enriched with examples concerning circular economy practices derived from secondary data.

After an initial overview of the book's aims and structure, this monograph introduces the reader to the circular economy thinking outlining its origins, principles and relationship with the concepts of sustainable development and corporate sustainability. Some critical perspectives of the concept are also sketched. The central part of the book reviews the literature on business models in the circular economy proposing a preliminary conceptualisation of the circular business model. It also explains the rationale for adopting circular business models under strategic management and neo-institutional lenses. Recommendations for future studies on circular business models are also given in this central section. Research contribution and limitations are summarised in the concluding chapter.

This book is aimed at students and researchers in the circular economy, circular business models and corporate sustainability. It can also be useful to practitioners interested in the circular economy concept and related business models.

My intellectual journey, including the writing of this book, has been supported by my close relatives and friends. I am very grateful first and foremost to Julie Whittaker for she provided a valuable feedback

on a preliminary version of this manuscript and, even more, because it is with her that I shared my passionate research interest in the circular economy since the beginning of my postgraduate career. She has always accompanied my research with dedication and care providing competent, thoughtful and challenging insights that have enriched and enlightened my understanding of the circular economy. Very special thanks also go to my husband, Giancarlo, who has always demonstrated comprehension and encouraged the preparation of this manuscript, and to my sister Laura, who is taking care of my relatives with daily commitment and love.

Exeter, UK Roberta De Angelis

Contents

Abbreviations

BM	Business Model
BMs	Business Models
CBM	Circular Business Model
CBMs	Circular Business Models
CE	Circular Economy
CEO	Chief Executive Officer
DEFRA	Department for Environment, Food and Rural Affairs
EC	European Commission
EMF	Ellen MacArthur Foundation
EU	European Union
GDP	Gross Domestic Product
NGOs	Non-Governmental Organisations
NRBV	Natural-Resource-Based-View
SMEs	Small Medium Enterprises
UK	United Kingdom
USA	United States of America
WRAP	Waste and Resource Action Plan

List of Figures

List of Tables

CHAPTER 1

Introduction

Abstract This chapter presents the book structure and aims. It outlines that the focus of this book is business model innovation in the context of the circular economy. This chapter also sketches points of difference from other publications on the circular economy.

Keywords Sustainable development · Corporate sustainability
Circular economy

1.1 Book Aims

We live in an economy that is exhausting natural capital: 'by 2012, the bio-capacity equivalent of 1.6 earths was needed to provide the natural resources and services humanity consumed in that year' (WWF 2016, p. 2). Surely humanity be better off in a capital restoring, and regenerative circular economy (EMF and McKinsey 2012). But what does such an economy look like, and exactly why do we need it? Who are the key players in creating and maintaining a circular economy, and what changes will they need to adopt for such an economy to flourish?

In 2000, Nobel Prize-winning scientists Paul Crutzen and Eugene F. Stoermer anticipated the emergence of 'the Anthropocene', a new geological epoch in which the scale of the human impact on planet Earth had reached unprecedented levels causing significant alteration of many of the Earth's ecosystems (Crutzen and Stoermer 2000). Over the years,

R. De Angelis, *Business Models in the Circular Economy*,
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concordant scientific evidence has supported their claim. Four planetary boundaries (biophysical thresholds): climate change, rate of biodiversity loss, land system change and biogeochemical cycles (phosphorus and nitrogen) have been already exceeded putting future prosperity of humanity under serious threat (Steffen et al. 2015, p. 7). Clearly, significant changes to redirect human activities towards a more harmonious relationship with the natural environment are necessary. There has been significant debate on this for several decades, with much discussion emanating from the concept of sustainable development, defined by the *Brundtland Report* as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (WECD 1987, *Our Common Future*, Chapter 2). The role of business in sustainable development has been discussed in the management literature under the nomenclature of corporate sustainability. While there are many definitions of precisely what this amounts to, encouragingly attention to social and environmental sustainability has grown significantly within the business community over time (Dillick and Muff 2015), moving away from it being positioned as 'heresy' to mainstream 'dogma' (Haigh and Hoffman 2014, p. 224). Yet at the same time, ecological sustainability and social equality continue to deteriorate (Gladwin 2012; Haigh and Hoffman 2014; Laszlo 2015).

Given the preamble to this chapter, the reader may be wondering about the nature of this book, maybe concluding that this is just one of the many attempts that fall within the 'doom and gloom' approach that has characterised many environmental publications and debates so far. This would not be surprising since a negative environmental rhetoric often prevails advanced by environmentalists and amplified by the media with the consequence of often creating confusion and inaction about environmental issues rather than generating an empowering attitude (Hollander 2003; Meyer and Kersten 2016). As Princen as said there is a danger that 'sinks of hope convert the resourcefulness of hope to the despair of hopelessness' (Princen 2010, p. 184). But let me assure you here: this book has no intention to fall in the 'doom and gloom' category. Instead it concurs with Princen in believing that we need 'a better metaphor (…) a better language (…) that enables living with nature' (p. 12) to more adequately address environmental problems. *What exactly is this book about, then? And which is the 'better metaphor' it connects with?*

This book is neither about macro, system-level approaches, nor about micro, individual responsibilities in relation to how to address

environmental problems more effectively. Rather it is focussed on corporations and the role they might perform in the transition towards a more environmentally friendly economy. This level of investigation can be justified on the following grounds. Firstly, corporations are the most influential organisations within the market, which in turn, is the most dominant coordinating institution on Earth (Hoffman and Ehrenfeld 2015). Consequently, any strategy aiming at increasing ecological or social sustainability cannot be pursued without the involvement of businesses (ibid.). Secondly, our market-based economy and corporations, that dominate economic activity, are accused of contributing to the current ecological crisis (Porter and Kramer 2011; Schaltegger et al. 2016; Schaltegger and Wagner 2011) and thus the proactive involvement of the business community is necessary in the transition towards a more sustainable economy (Hahn and Figge 2011; Schaltegger et al. 2016; Wells 2016). Thirdly, corporations are endowed with resources and capabilities and thus they have the potential to drive the change towards a more sustainable economy (Shrivastava et al. 2013; Winn and Pogutz 2013). A failure to do so can risk greater tensions arising from societal expectations, thereby ultimately affecting their legitimacy to operate (Hart 2010; Naughton et al. 2010; Wells 2013; Winn and Pogutz 2013). Playing an active role in addressing environmental and societal concerns as a matter that is central to doing business rather than as a marginal activity, would contribute to overcoming the separation between businesses and society that the prevalent instrumental logic to sustainability, with a lack of a system perspective, has produced (Gao and Bansal 2013; Porter and Kramer 2011). Corporations are demanded to do 'more' given that corporate efforts have mostly reduced negative impact (Gorissen et al. 2016; Hawken et al. 2010; Laszlo 2015), but what exactly is 'more'? Has it to be grounded in the concepts of sustainable development and corporate sustainability? For reasons that will become clearer in its subsequent parts and particularly in Chapter 2, this book believes that the answer to these questions is not within these existing concepts.

On the contrary, maybe our economy can thrive by learning from the cyclical functioning of ecosystems where not only are resources used more efficiently but where the concept of waste does not exist (EMF and McKinsey 2013). These principles are at the heart of the circular economy thinking, which aims at reintegrating economy within ecological limits (EMF et al. 2015), and it is the circular economy the

'better metaphor' this book engages with. EMF and McKinsey (2012) describe it well as 'an industrial system that is restorative or regenerative by intention and design [that] replaces the end-of life concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impairs reuse and aims for the elimination of waste through the superior design of materials, products, systems, and within this, business models' (p. 7). The implementation of the circular economy could have significant positive impact on production and consumption systems. Notably, it is 'an economy that provides multiple value creation mechanisms which are decoupled from the consumption of finite resources' (EMF et al. 2015, p. 23). Pioneering innovators from across the globe have already been motivated to fundamentally rethink their business practices. Business model innovation is a crucial constituent for achieving a circular economy (EMF 2015; EMF and McKinsey 2012; Hopkinson et al. 2016; Lacy and Rutqvist 2015; Scheepens et al. 2016). Therefore, the role of business leaders in guiding the transition is central. Although a relatively new concept, circular economy thinking is attracting the interest of business leaders, policymakers and increasingly the academic community. Consequently, a book on the circular economy is timely and pertinent. But what has this book to offer that it is not already written?

The system-wide changes required in a transition towards the circular economy have been sketched in a number of academic and practitioner publications (e.g. Ex'tax Project 2016; Green Alliance 2013; Lacy and Rutqvist 2015; Moreau et al. 2017). By contrast, little has been said about the business angle of the circular economy (Franco 2017) and it is here that this book focusses. It concentrates on the role of companies in the transition and the transformation, in the form of business model innovation, they need to undertake to reap its benefits. This is a significant area of enquiry because more clarity is needed in the business community to enable business leaders to fully grasp what circular business models mean for their business practices. It is also relevant, since in the academic literature, multiple and divergent constructs are emerging around terms relating to both the circular economy and circular business models. The absence of a common ground elucidating first what a circular business model exactly is means that theory building is constrained. This book elaborates a set of propositions that are conducive to a preliminary, more systematic conceptualisation of the circular business model. It also investigates the theoretical foundations of

business model innovation in the context of the circular economy. Both currently appear almost missing from the relevant literature. The conceptualisation offered in this book is built from existing examples in the academic and practitioner literature on both business models and the circular economy. Business models are 'many and varied and contextualised' (Wells 2013, pp. 134–135) and, therefore, this book does not aim to provide a definite answer in relation to how circular business models can be conceptualised. The systematic conceptualisation presented here can be considered as a stepping stone towards greater clarity and theory building. In so doing it provides some direction for future research and elucidates and makes the circular economy language more amenable to the business community. The perspective adopted is rooted in management studies and contributes to the rather limited discussion on the circular economy that has come from the business disciplines to date (Moreno et al. 2016). This book also bridges the academic and practitioner literature on the circular economy which has developed rather in silos so far with scant cross-fertilisation. Some studies have traced the origins of the circular economy concept and in some cases, they have highlighted the similarities between the circular economy thinking and its originators (e.g. Bocken et al. 2016; EMF and McKinsey 2012; Lacy and Rutqvist 2015; Weetman 2017). This book acknowledges the foundations of the concept while underlining the differences from the related schools of thought. Furthermore, whereas some literature has dealt with the relationship between the concept of sustainable development and the circular economy noting differences and similarities, concluding they are consistent and incompatible (e.g. Geissdoerfer et al. 2017; Ghisellini et al. 2016; Korhonen et al. 2018; Murray et al. 2015; Sauvé et al. 2016), this study does not place these two concepts in relation to each other for reasons that will be elucidated in Chapter 2.

1.2 Book Structure

Following this introductory chapter, the remaining parts of this book are organised in the following way.

Chapter 2 sets the level of the research context of this book. The aspect of which concepts and models are more effective and can inspire business leaders towards the development of industrial systems that are more respectful of the natural world is addressed. This chapter focusses on the concept of the circular economy. Nonetheless, to engage

the reader with a more inclusive narrative of the models that have been proposed to move towards a more environmentally and socially sustainable economy, this chapter briefly reviews some critical perspectives of 'sustainable development', 'corporate sustainability' and other proposals that have been discussed in the literature in the recent years. This discursive section contributes to clarify the perspective taken in this book in relation to why it is believed that the circular economy is a more powerful model that brings the hope of transforming our current economy to one that is ecologically strong. The context within which the circular economy thinking has emerged and its characteristics are discussed alongside its relationship with 'sustainable development', 'corporate sustainability' and its originators. Some critical reviews of the concept are also sketched.

Chapter 3 responds to the need for more clarity in the lexicon in use in the circular economy field. From 2010 on, the visibility of the circular economy thinking has increased at the academic, policy and business levels. However, confusion on the meaning of the words circular economy and divergence in the circular economy terminology in use exist (Bocken et al. 2016; Gallaud and Laperche 2016; Murray et al. 2015). This chapter first presents a review of the business model literature and provides more definition to the term of business model and its main characteristics. Secondly, it reviews the academic, practitioner and grey literature on circular business models to identify the current state of the research in the field. Thirdly, it presents a set of propositions leading to a preliminary conceptualisation of the circular business model merging themes from the business model literature with the implications for business models deriving from the application of the circular economy thinking inferred from practical examples and the literature. The chapter concludes with a summary and recommendations for future work on circular business models. Recommendations relate to the type of the industry and company to investigate and appropriate research method.

Chapter 4 starts laying the theoretical foundations of business model innovation in the context of the circular economy. This is a pertinent area of enquiry since the theoretical understanding of the rationale for adopting innovative circular business models or transforming existing ones is currently overlooked. To contribute to address this limitation, Chapter 4 seeks to understand how the rationale for adopting circular business models can be explained. The integrated theoretical framework used combines the natural-resource-based-view of the firm (Hart 1995)

and the neo-institutional theory (Di Maggio and Powell 1983) from the strategic management and institutional theory literature, respectively, to coalesce factors relating to the internal workings of the firm, with the external environment. This chapter also discusses (a) the potential through which circular business models advance the theoretical framework, and (b) the extent to which the implications of circular business models are source of tensions for the theoretical framework used. The concluding section summarises the contribution of this chapter in addition to identifying opportunities for future research.

Chapter 5 provides a final reflection, which highlights the specific contribution that this enquiry brings to the academic literature, its limitations and implications for practitioners wishing to implement circular economy-driven business model innovation.

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CHAPTER 2

Sustainable Development, Corporate Sustainability and the Circular Economy

Abstract This chapter focusses on the circular economy. Nonetheless, to engage the reader with a more inclusive narrative of the models that have been proposed to move towards a more environmentally and socially sustainable economy, this chapter briefly reviews some critical perspectives of 'sustainable development', 'corporate sustainability' and other proposals discussed in the literature in the recent years. This chapter also describes the context within which the circular economy thinking has emerged and its characteristics. It reflects on its relationship with 'sustainable development' and 'corporate sustainability' as well as with its originators, and it reviews some critical perspectives of the concept.

Keywords Sustainability · Corporate environmentalism
Circular economy

2.1 Introduction

What are the concepts and models that can lead successfully to a more ecologically benign economy and are more effective in engaging corporations in the development process? The introductory section of this manuscript has already briefly outlined the perspective taken in this book. Therefore, it comes as no surprise that the answer to this question is firmly rooted in the circular economy (CE hereafter), which is the focus of this chapter. Particularly, in the second part (from Sect. 2.3 on),

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the CE thinking is introduced, outlining the origins of the concept, its main principles, how it differs from its originators and the context within which it is gaining consensus along with a review of some critical perspectives of the concept. Nonetheless, to offer a more comprehensive and detailed explanation of the viewpoint taken in this book and consequently of the answer given to this chapter question, the first part of this chapter (Sect. 2.2) reviews some critical perspectives over the concepts of 'sustainable development' and 'corporate sustainability'. It also briefly analyses other proposals for progressing towards a more environmentally and socially sustainable economy. The flaws in the concepts of 'sustainable development', 'corporate sustainability' and the other models reviewed, help clarify the reasons why the CE is a more powerful model for a positive transformation of the economy to one that operates and thrives within ecological limits.

2.2 Sustainable Development and Corporate Sustainability: An Assessment

In *Our Common Future*, the 1987 report of the World Commission on the Environment and Development also known as *Brundtland Report*, the most widely acknowledged definition of sustainable development was proposed (Banerjee 2003; Gladwin et al. 1995). The concept of sustainable development has been object of an extensive debate over the last thirty years and additional definitions have been proliferating. 'Strong' and 'weak' sustainability are the two main declinations of the concept (Beckerman 1994). While advocates of 'strong' sustainability counsel that advances in technologies will not suffice to eliminate pressure on finite resources and that there are no substitutes for 'critical' natural capital, i.e. those environmental goods and services that cannot be replaced because of the function they explicate, 'weak' sustainability places greater emphasis on progress in resources and energy efficiency to attain environmental sustainability, and implies that some substitution of natural capital with man-made capital is possible provided that this substitution increases welfare (Costanza et al. 1997; Revell 2008). The *Brundtland Report* definition has attracted several criticisms for (a) not offering any guidance for action (Banerjee 2003; Montiel and Delgado-Ceballos 2014); (b) not specifying what 'needs' exactly mean and which needs should be prioritised (Starik and Kanashiro 2013;

Starik and Rands 1995) and (c) being 'morally unacceptable' and 'totally unpractical' (strong sustainability) as well as 'redundant' as overlapping with the concept of 'optimality' in economy (weak sustainability) (Beckerman 1994, p. 191). The first declination of the concept would appear as 'unacceptable' and 'unpractical' because of its 'absolutist' meaning, i.e. 'as a requirement to preserve intact the environment as we find it today in all its forms' (p. 194). Beckerman (1994) asks: 'how far does the Brundtland report's injunction to conserve plant and animal species really go?' (p. 194). And 'how many people lose sleep because it is no longer possible to see a live Dinosaur?' (p. 194). He also claims that 'weak' sustainability, in arguing for the substitution of natural capital with man-made capital provided that there are no losses in welfare, corresponds to welfare maximisation in economics and therefore, it is proposing nothing new.

Within the business community and the Management academic literature, sustainable development ideas have been discussed under the nomenclature of corporate sustainability (Etzion 2007; Gao and Bansal 2013; Winn and Pogutz 2013; Zollo et al. 2013). Elkington (1997) was the first to define corporate sustainability as an approach whereby companies aim for social and environmental performances along economic ones, but since this is quite general, many other definitions have followed (Montiel and Delgado-Ceballos 2014). A complete review of the evolution of the social dimension of corporate sustainability is beyond the scope of this book, which concentrates on the ecological facet of the sustainability concerns. Hence, in reviewing the corporate sustainability concept and its applications, attention is given exclusively to corporate environmentalism.

Interest in corporate environmentalism is a consequence of both, increasing scepticism towards corporations, perceived as sources of environmental degradation and growing public expectations for companies to commit themselves to solving our pressing environmental concerns (Hoffman and Bansal 2012). Since the 1960s, it has evolved through three different phases. The first phase (late 1960s–early 1970s) saw corporate environmentalism as a matter of compliance to the regulatory environment (ibid.). Milton Friedman infamously wrote in the New York Times Magazine in 1970 that the sole social responsibility of businesses is to maximise shareholders' return while operating within the rules established by markets and institutions. At that point in time,

being environmentally responsible was considered 'at best a necessary evil and at worst a temporary nuisance' (Hoffman 2001, p. 3). One year later, Narver (1971) countered Friedman's position by arguing that it would be appropriate to engage in some actions to address the impact of corporate activities (e.g. pollution) upon society in advance of legal requirements prescribing to do so. In the face of both growing public concerns about environmental issues and expectations of more proactive business initiatives, not taking actions could result in a company experiencing lower present market value induced by the perceived higher risks and reduced earnings (Narver 1971).

Between the late 1980s and early 1990s, corporate environmentalism became a matter of strategic concern (Hoffman and Bansal 2012). Michael Porter, the prominent scholar in the field of competitive strategy, argued that environmental responsibility is not so much a threat to a company bottom line but rather an opportunity that could lead to a better competitive advantage through enhanced resource efficiency (Porter and Van der Linde 1995). On a similar line, Hart (1995) developed the natural-resource-based-view of the firm arguing that in a world of finite resources, competitive advantage will be influenced by the development of new capabilities in the management of the interface with the natural environment, namely pollution prevention, product stewardship and sustainable development. The rise of corporate environmental sustainability as a matter of strategic concern and the increased awareness of environmental issues, the latter triggered by the Rio de Janeiro Earth Summit in 1992, led to the growth of the Business and Natural Environment literature (Etzion 2007; Hoffman and Bansal 2012). The development of this was encouraged by the launch of the Organizations and the Natural Environment division of the Academy of Management in 1994 (Etzion 2007), the advent of special issues in journals like *Long Range Planning* (1992), *The Academy of Management Review* (1995) and *The Academy of Management Journal* (2000) and by other dedicated journals such as *Organization & Environment* and *Business Strategy and the Environment* (Banerjee 2003; Whiteman et al. 2013).

From the late 2000s, corporate environmentalism becomes broader in scope including concerns over equality and the restructuring of our economy (Hoffman and Bansal 2012). Framed as corporate sustainability, it appears more established within management practice (ibid.). Sustainability emerges as a rising business 'megatrend' (Lubin and Esty

2010, p. 44) and as a developing 'long wave' (Kondratieff and Stolper 1935, p. 105) of innovation (Seebode et al. 2012, p. 196). In addition, new forms of enterprises are observed. Examples include (a) the 'third generation (…) [or] sustainable corporation' (Hart 2012, p. 647) characterised by a stakeholder orientation, and (b) 'hybrid organizations' (Haigh and Hoffman 2012) operating between for-profit and non-profit to address environmental and social concerns. The founding father of stakeholder theory, R. Edward Freeman, has defined stakeholders as 'those groups and individuals who can affect or be affected' (Freeman 1984, p. 25) by the activities of organisations. Customers, investors/shareholders, employees, suppliers, government, trade associations, political groups and communities are generally referred to as stakeholders (Donaldson and Preston 1995). One of the main tenets of stakeholder theory is in postulating that the purpose of doing business should go beyond that of simply maximising short-term shareholders' wealth towards creating value for all stakeholders (Hörisch et al. 2014). Also notable is the unfolding of *For-benefit Corporations*, *Conscious Capitalism* and *Corporation 2020* movements which share with the former a model of enterprise based on a deeper, more comprehensive purpose of doing business (Waddock and McIntosh 2011).

Over the years, attention to social and environmental sustainability has grown significantly within the business community (Dillick and Muff 2015) and moved away from 'heresy' to 'dogma' (Haigh and Hoffman 2014, p. 224). Yet, ecological sustainability and social equality continue to deteriorate (Gladwin 2012; Haigh and Hoffman 2014; Laszlo 2015) as noted in the introductory chapter. Inevitably, corporations are demanded to do 'more' given that corporate efforts have mostly reduced negative impact (Gorissen et al. 2016; Hawken et al. 2010; Laszlo 2015) but what exactly is 'more'? Increasingly, scholars in the Business and Natural Environment literature are calling for radical, fundamental changes and particularly for innovative business models that offer new ways of creating, delivering and capturing value, while producing positive ecological and social effects (Haigh and Hoffman 2014; Evans et al. 2017; Roome and Louche 2016; Schaltegger et al. 2016). In relation to this, another pertinent question is: Are these more radical innovations to be grounded in the concepts of sustainable development and corporate sustainability? Donella Meadows, a prominent environmental scientist, in the essay titled '*Envisioning a sustainable world*', comments: 'the most

widely shared picture of a sustainable world is one of tight and probably centralized control, low material standard of living, and no fun. (…) Whatever the reason, hardly everyone envisions a sustainable world as one that would be wonderful to live in' (Meadows 1996, p. 2). Amory Lovins, an environmentalist and energy policy expert who has authored dozens of articles and influential books like Natural Capitalism (2000) and Reinventing Fire (2011), once commented: 'if you were to ask one of your friends how their relationship is with their partner and they were to say it's sustainable, you would probably say, I'm sorry to hear that' (as reported in Pawlyn 2016, p. 64). More recently and on a similar line, Laszlo (2015) adds: 'corporate sustainability has largely come to mean doing less harm. As an applied concept and practice it no longer inspires or engages. Corporate sustainability efforts are not meeting our collective expectations for a world in which companies prosper, people excel, and nature thrives' (pp. 106–107).

Sustainable development is a contested concept. Corporate sustainability initiatives have not produced change in a sufficient measure and the catalytic power of 'sustainable' and 'corporate sustainability' in promoting the shift towards a more harmonious and prosperous relationship between economy and ecology, appears to be flawed. Yet, the ecological crisis urges concrete and effective solutions. Therefore, how to address this conundrum?

The 2008 global financial crisis and a series of business scandals, contributed towards many publications which address the concomitant ecological crisis, and advocated wide-ranging reforms in order to develop a more sustainable economy (e.g. Coyle 2011; Jackson 2009; Speth 2008; Waddock and McIntosh 2011). In *The Economics of Enough*, Coyle warns about the consequences of the lack of attention towards future in today's economic policy and she deals with the question of how to continue prospering in the present while not neglecting the future. She emphasises three important steps in the pursuit of such a goal: (a) moving beyond GDP (Gross Domestic Product) as indicator of prosperity; (b) aiming for economic, environmental and social goals simultaneously in economic policy, and (c) a reform of political, social and economic institutions that encourages, for instance, longer time horizons in decision making across the many spheres of our society, and savings rather than overconsumption. Structural changes are encouraged also by Jackson, in *Prosperity Without Growth*, to move away from the current economic system that

relies on consumption for its internal stability. Eco-innovation and service-based business models where customers have access to the performance of a product rather than ownership are also welcomed to promote more resource-efficient production processes. Speth, in *The Bridge at the Edge of the World*, notes that 'prosperity has been and is being purchased at a huge environmental cost' (p. 50) and thereby, in line with the other positions just presented, he argues for more government intervention to solve the environmental crisis. Elements of such a government intervention would be an effective fiscal reform that eliminates 'perverse incentives' (p. 100) and makes polluters paying for the negative ecological impact produced. Waddock and McIntosh, in *SEE Change*, talk of the necessity of a sustainable enterprise economy, the SEE acronym in their book title, which emerges from a changing perspective, one that 'bringing together the principles of sustainable development, which include eco-efficiency and social justice, with the principle of allowing enterprise and innovation to blossom, provides the best possible milieu for a wholly new model of capitalism to be born out of the current wasteful and inequitable model of wealth creation' (p. 40).

Yet, the limitations of 'technological optimism' and the existence of the so-called Jevons' paradox also known as 'rebound effect', i.e. improvement in energy and resource efficiency leading to uptakes in consumption (Ayres 2008; Jackson 2009), have pushed scholars to argue for even more radical transformations of our market-based economy (e.g. de-growth) and of organisations within this. Described as 'an equitable downscaling of production and consumption that increases human well-being and enhances ecological conditions at the local and global level, in the short and long term' (Schneider et al. 2010, p. 512), de-growth considers as inevitable to limit production and consumption to tackle ecological and social crises more effectively. However, concerns over the de-growth agenda have been expressed and particularly on (a) its social desirability, (b) effectiveness at addressing environmental issues and (c) on the limited guidance offered on how to implement the transition (Geels et al. 2015; Plumecocq 2014; Van den Bergh 2011). For one, Van den Bergh (2011) criticises the de-growth agenda for being 'normative and idealistic rather than analytical and realistic' (p. 884). In his analysis, a GDP de-growth is very likely to have certain negative social consequences but uncertain positive effects in terms of reduced environmental impact both in the short and long terms. In the short term,

a contraction of the GDP will probably redirect production activities towards cheaper and thus dirtier technologies, and in the long term, a contraction of the GDP is likely to lead to a reduction in cleaner technologies investments too. Equally, Van den Bergh does not regard consumption de-growth as an effective and efficient strategy, which also comes with measurement and policy issues. Indeed, it is not entirely clear how to measure consumption de-growth, which means by how much each individual should reduce his/her consumption to produce a positive effect on the environment (ibid.). Furthermore, if there were to be a government policy to reduce consumption, this would resemble a central planned economy (ibid.) and bring risk of the environmental disasters produced by this political and economic system, which are well documented (e.g. Feshback and Friendly 1992).

The feasibility, desirability and effectiveness of the de-growth agenda are questioned. The weaknesses of 'sustainable' and 'corporate sustainability' as instruments for the flourishing of industrial models that are more respectful of the natural world have been highlighted. This might lead into the temptation to surrender to the power of 'doom and gloom' and therefore to inaction. Consequently, how to escape this trap? Richard Buckminster Fuller, an engineer, designer and futurist renowned for its pioneering work on renewable energy sources and innovative design, is known for having said 'you never change things by fighting the existing reality. To change something build a new model that makes the existing model obsolete' (as reported in Lovins 2011, p. 166). A potential, alternative 'new model', which can make the 'existing model' of the linear economy 'obsolete', catalyse a new 'wave' of innovation wherein corporations have a key role to play and address many of the current ecological and social concerns, is the CE. The central role of businesses in the CE is clearly put forward by Ken Webster, head of innovation at the Ellen MacArthur Foundation (EMF hereafter), a British third sector organisation considered the global leader in the CE field (Geissdoerfer et al. 2017; Goyal et al. 2016), who argues that the CE is 'led by business for a profit within the rules of the game' (Webster 2013, p. 543). The reasons why it is believed that the CE can be the 'new model' are explained within the remaining sections of this chapter, which outline the context within which the CE thinking is emerging, its principles, origins and potential limitations as well as its relationship with the sustainable development and corporate sustainability concepts.

2.3 The Circular Economy: Context, Principles, Limitations and Relationships

The prevailing, linear logic of take-make-dispose underlying current industrial models, with resources extracted, used in the manufacturing products and then discarded by consumers at the end of their useful life, is not only source of many environmental concerns such as natural resources depletion, waste, significant energy use (EMF and McKinsey 2012; EMF et al. 2015; Esposito et al. 2016), but it is also challenged in its viability by socio-economic and regulatory trends.

Escalating pressures on natural resources, increasing resource price volatility, more middle class consumers entering the market, the rise of the sharing/renting economy and growing regulatory interventions on waste and climate change, are some of these (EMF and McKinsey 2012; EMF 2015a; Lacy and Rutqvist 2015; WEF et al. 2014). Commodity prices and prices volatility climbed substantially at the beginning of the twenty-first century till its first decade (EMF and McKinsey 2012). In its latest commodity markets outlook (April 2017), The World Bank forecasts higher prices for industrial commodities and particularly for energy and metals for the current and the next year (World Bank Group 2017). Resources price and supply volatility are of particular concerns within the EU, considering that Europe is the world's biggest net importer of materials and natural resources (EMF et al. 2015) and that China, controlling about 90% of total production of rare-earth elements essential in the manufacturing of electronic equipment, has placed restrictions on their export since 2010 (Institut Montaigne 2016). The shared utilisation of goods among users is gaining some consensus across sectors as the cases of car/bike/home sharing demonstrate (Belk 2014; Cohen and Kietzmann 2014). The world population is expected to surpass 8 billion by 2030 (Goyal et al. 2016) with middle class consumers doubled within the same period (Esposito et al. 2016). The regulatory context has witnessed remarkable changes that seek to address waste and greenhouse gases emissions. The number of climate change regulations has registered an important increase (by 66%) since 2009 and so it is for landfill taxes (e.g. in Europe, 20 countries levy landfill taxes) (EMF 2015a). In addition, the unfolding of the Fourth Industrial Revolution, leveraging on digital technologies and advances in new technologies including the Internet of Things, 3D printing and robotics, is creating new opportunities in how resources and products are used and consumed as well as breaking up conventional sources

of competitiveness (EMF and WEF 2016; Lacy 2017). *Philips*, instead of selling light bulbs, offers lighting as a service to its customers and because of access to real-time data on usage patterns, it can offer optimised lighting service, enhancing customers' experience (EMF and WEF 2016). *Zipcar*, a car-sharing model, is enabled by asset tracking and mobile technologies (ibid.). *Apple*, because of the usage of Liam, its iPhone disassembly robot, which is able of both disassembling a discarded iPhone, and separating its components into materials that can be reused, is seizing value ($40 million) from materials formerly discarded (Lacy 2017). All of these developments in a company's macro environment are changing significantly the competitive landscape, demanding major adjustments in the value creation mechanisms underlying traditional business models while creating potential new sources of value. Can the industrial model be still based on linear patterns given changing modes of consumption, disruptive technologies creating new opportunities for value creation and current and predicted trends in global demand, supply volatility, resource scarcity and regulatory pressures? It is within this context that the CE thinking is gaining increasing consensus in policy and business circles around the world (Franklin-Johnson et al. 2016; Giurco et al. 2014; Gregson et al. 2015; Hazen et al. 2016) by proposing more resource-efficient industrial models that mimic the cyclical functioning of ecosystems where the concept of waste does not exist (EMF and McKinsey 2013).

Described as 'an industrial system that is restorative or regenerative by intention and design [that] replaces the end-of life concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impairs reuse and aims for the elimination of waste through the superior design of materials, products, systems, and within this, business models' (EMF and McKinsey 2012, p. 7), the implementation of the CE could have significant positive impact on production and consumptions systems. Notably, it is 'an economy that provides multiple value creation mechanisms which are decoupled from the consumption of finite resources' (EMF et al. 2015, p. 23). Engaging with the CE thinking requires the application of three principles that together lead to an economy that is prosperous while being natural capital restorative and regenerative (EMF et al. 2015). The first one, i.e. *preserve and enhance natural capital*, demands to deliver utility virtually and when products are to be manufactured, only renewable energy and materials should be used whenever possible (ibid.). At the end of their useful life, renewable materials must be returned to nature to enriching natural capital (ibid.).

The second principle, *optimise resources yields*, involves maximising the value of resources over time in both *technical* and *biological cycles* (ibid.). In a CE, materials follow two usage patterns. Biological or renewable materials are designed without toxic components and can be safely returned to nature when reuse is no longer viable (EMF and McKinsey 2012; Lacy and Rutqvist 2015). Technical (synthetic or mineral) materials are conceived to return to the production processes through maintenance, repairing, refurbishing, remanufacturing and recycling, provided that materials quality is preserved (ibid.). These materials recovery strategies are hierarchical in the sense that recycling is the least valuable option as the others preserve more of a product integrity and embedded energy and labour (EMF and McKinsey 2012). In this system, product durability is enhanced and product sharing contributes to extend a product life cycle (EMF et al. 2015). Figure 2.1 compares a linear with a circular industrial model and the different shades of black in the technical and biological materials box indicate the preferred hierarchy of materials strategies (starting from the darkest shades) for end of life recovery.

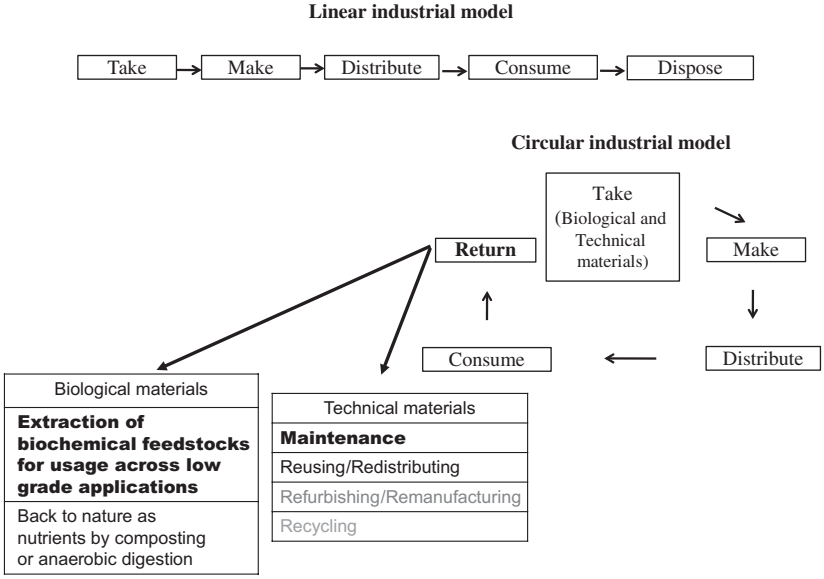

Fig. 2.1 A linear versus a circular industrial model (*Source* Based on EMF and McKinsey (2012))

The third principle, *foster system effectiveness*, promotes the elimination of negative environmental externalities (pollution in its various forms) (EMF et al. 2015).

Five, more detailed characteristics of the CE can be derived from the definition given by EMF and McKinsey (2012). *Design out waste:* in a CE, the concept of waste does not exist and application of this is obtained by circulating materials in biological and technical cycles (EMF and McKinsey 2013). *Build resilience through diversity*: in living systems, biodiversity ensures system resilience; consequently, the CE values diversity in economy (e.g. different scales of business) as necessary to achieve system resilience and prosperity (ibid.). *Shift to renewable energy sources:* a CE is powered by renewable energies, which warrants system resilience and prosperity because of both reduced exposure to external shocks, i.e. oil price and supply volatility, and diminished dependence on scarce resources (ibid.). *Think in systems:* the CE appreciates the interdependencies existing among the many entities in our complex world and by applying system thinking, it takes them into account in considering how to organise the transition (ibid.). *Think in cascades:* in a CE, biological materials are cascaded across different applications before returning to nature as nutrients (ibid.).

To promote the implementation of the CE, four building blocks are also identified (EMF 2015a). *Circular product design and production:* for materials to circulate properly in technical and biological cycles, product design (design for disassembly) and careful materials selection (i.e. durable, easy to sort-out at the end of life) are essentials (ibid.). *New business models:* business models that incorporate circular features (e.g. access over ownership; design for disassembly; product durability) and convert them into appealing value propositions are necessary to compete against linearly produced and low cost products; successful business models will be replicated thus contributing to scaling the circular model up more quickly (ibid.). *Reverse cycle:* circular loops necessitates reverse logistics to function and therefore, collection and treatment systems (e.g. sorting, warehousing) (ibid.). *Enablers and favourable system conditions:* these are not set up by corporations unlike the first three building blocks, but that are also crucial to build a CE and necessitate government intervention. These include (a) *education*, to create the skills for delivering a CE, for example, in circular design and production; (b) *financing*, to support innovation in the CE while reducing the barriers that prevent circular innovators to get access to financial capital; circular models are regarded

as highly risky because, for instance, when innovation comes from start-up and fairly young SMEs, their creditworthiness is not considered as sufficient (FINANCE 2016); (c) *collaborative platforms*, i.e. collaboration within and beyond supply chains and with policymakers, are necessary for the scalability of the model, for instance, in the development of industry standards and to overcome split incentives (EMF 2015a); a split incentive occurs, for instance, when the benefits of design for disassembly are earned by the companies doing the disassembly and recovery and not by the manufacturer (Green Alliance 2013); (d) *a new economic framework*, that prices externalities, moves taxation from labour towards resources and considers more inclusive metrics of wealth assessment than the GDP (EMF 2015a).

Current research identifies the potential economic, environmental and social benefits deriving from a CE in mitigation of unemployment, reduced waste and greenhouse gases emissions, significant materials costs saving (in the measure of US $1 trillion by 2025) and further sources of revenues (Club of Rome 2015; EMF et al. 2015; Esposito et al. 2016; Van Buren et al. 2016; WRAP and Green Alliance 2015). The economics of the CE calculates that: (a) there could be huge employment opportunities in repair and remanufacturing, recycling, reuse and biorefining in a CE (WRAP and Green Alliance 2015); (b) end users would benefit by accessing goods in a less expensive way (leasing rather than buying upfront expensive items) and by the increased durability of products (because of reduced premature obsolescence) (EMF and McKinsey 2012); (c) reduced costs, reduced supply chain and price volatility risks, new revenues streams and stronger and long-lasting relationships with end users would benefit companies (Accenture 2014); and (d) a full 'circular advantage' going beyond resource efficiency to include the attainment of increased customers' value in product use and after use stages (e.g. take-back schemes; access over ownership) where most of customers' value is created, could be attained (Lacy and Rutqvist 2015). From an environmental perspective, less wasteful business processes and consumers' attitudes towards products at the end of their useful life could reduce disposal to landfill and thus soil, water and air pollution, which are negative environmental externalities that the CE seeks to address (EMF et al. 2015). Because of this reduced wastefulness and because the CE aims to shift to renewable energies, it is considered as an appropriate strategy for climate change mitigation (EMF and McKinsey 2012; ZWS 2015). Increased resource efficiency has positive implications

for intergenerational resource distribution since reduced material intensity within the economy today means that valuable resources are more likely to be available for future generations (Murray et al. 2015).[1]

As a consequence of the multiple benefits that could be earned in the transition towards the CE, it is not surprising that circular principles are currently implemented by a number of innovators worldwide (EMF and McKinsey 2012, 2013; Lacy and Rutqvist 2015). Recent survey data highlight that the uptake of CE principles is becoming quickly established within companies' supply chains especially across the chemicals, high-tech and automotive sectors (O' Marah 2017) and the concept is gaining grounds within the EU, the USA, Japan and China with a flourishing of numerous initiatives (Ghisellini et al. 2016; Preston 2012). In Europe, the goal of resource efficiency and thus of a more CE is established at the heart of 'Europe 2020 strategy' (EC 2011). In the EU, a 'CE package' was presented by the European Commission in the late 2015 (EC 2015a) containing targets affecting waste to landfill and food waste as well as measures to promote both the uptake of design for reparability/recyclability, and green public procurement among others. This package was replaced later by 'Closing the Loop-An Action Plan for the Circular Economy', whose measures can be fully accessed on the EC web portal (EC 2015b). Many European organisations are also engaged with the concept to promote it and several are in the UK. The EMF is one of these. The foundation in partnership with the *World Economic Forum*, *McKinsey & Company*, *SUN* and *SYSTEMIQ*, has produced several reports outlining the economic rationale of the transition towards a CE and stimulated discussion among businesses, policymakers and higher education institutions with the mission to facilitate the transition towards the CE. The *Aldersgate Group* is a forum of business leaders and members of parliament/civil society that seeks to drive initiatives for a more sustainable UK's economy and has published some reports on the CE (Aldersgate Group 2015, 2016, 2017). *WRAP* is a third sector organisation which works to promote waste prevention and resource efficiency across the UK (WRAP 2016) and the *Forum for the Future* is a non-profit British organisation working with businesses and

[1] A comprehensive assessment of the opportunities of a CE is available in the numerous publications that the EMF has produced in collaboration with its partners (WEF, McKinsey & Company, SUN and SYSTEMIQ) to date. See: EMF (2015a, b, 2016), EMF and McKinsey (2012, 2013), EMF et al. (2015, 2017), WEF et al. (2014).

public organisations to develop more sustainable practices mostly in the food and energy systems (Forum for the Future 2017). The British Standards Institute, a third sector body, has very recently launched the 'BS 8001: 2017 Framework for Implementing the Principles of the Circular Economy in Organisations'. This is the first British and global standard seeking to provide practical guidance to businesses of any size and sector wanting to implement CE principles (BSI 2017). *Circularity Capital* is a private equity firm founded to provide clients with access to the investment opportunities related to the CE in Europe (circularitycapital.com). *Circulab* helps businesses to understand how to align their business models to the CE thinking (circulab.eu). The Netherlands have positioned themselves as an international 'circular hot spot' when they were holding the presidency of the EU in 2016 (NLCH 2016). *Circle Economy*, is a Dutch social enterprise that seeks to facilitate the implementation of the CE at scale by providing tools and programmes for business leaders and policymakers (Circle Economy 2016). *Open Source Circular Economy Days* is an open source CE platform which produces documents and CE solutions open to all and organises open events where interested people can test these ideas (oscedays.org). In China, the CE is by law an objective of the country economic development policy (Giurco et al. 2014).[2] The CE is also part of the new United Nations Sustainable Development Goals adopted in the late 2015 with the aim to tackle poverty, prosperity and environmental protection (UN 2016).

The environmental, economic and social gains that could be attained in the circular model have also stimulated academic publications concerning the relationship between the CE and the concept of sustainable development. Ghisellini et al. (2016) suggest that the CE proposition is compatible with the sustainable development concept as presented in the *Brundtland Report* because it promotes resource efficiency and thus not only environmental protection but also intergenerational justice. Korhonen et al. (2018) concur with Ghisellini and colleagues. In the authors' opinion, the CE thinking is akin to the three dimensions of the sustainability concept as it promotes more resource-efficient industrial processes (environmental dimension), reduced materials cost volatility and increased business opportunities (economic dimension) and shared consumption as well as increased employment (social dimension).

[2] For a comprehensive review of regulatory policies in the context of the CE across different regions, see: Mathews and Tan (2016), McDowall et al. (2017), Murray et al. (2015).

On a similar line, Santos et al. (2017) contend that the CE is a viable path to attain sustainable development. By contrast, Murray et al. (2015) warn about the environmental consequences of some CE strategies. According to the authors, enhanced product durability is not always beneficial because this can result in products composition that is over complex and potentially hard to breakdown at the end of their useful life. In addition, they also argue that social goals are not contemplated within the CE discourse which emphasises more the economic and environmental gains. Consequently, to address this void, they re-conceptualise the CE as 'an economic model wherein planning, resourcing, procurement, production and reprocessing are designed and managed, as both process and output, to maximize ecosystem functioning and human well-being' (p. 7). Similarly, Sauvé et al. (2016) underline the mostly neglected social dimension in the CE discourse though also suggesting that there is some overlap between the latter and the concept of sustainable development and that they are both useful to attain a better environmental protection. Hobson and Lynch (2016) associate the CE with the 'weak sustainability' perspective and they counsel that it is not so radical to attain the transformation of current production and consumption systems as it does not address fundamentally the roots of the impending ecological and social crises. The limited attention of the social dimension in the CE thinking is highlighted also by Geissdoerfer et al. (2017) with the danger of this being that public and private resources and attention may be diverted from more inclusive approaches. However, on a more positive note, they state that the CE approach offers better guidance for action than the concept of sustainable development which, by contrast, has been criticised for being too vague.

This book differs from the studies just outlined because it does not intend to place sustainable development and corporate sustainability in relation to the CE but rather to distance the latter from the former. This is the case for some reasons. First of all, the suitability of the concept of sustainable development and corporate sustainability for inspiring and providing effective direction to firms to address ecological and social concerns is open to question. Consequently, here it is argued that linking the CE to flawed concepts would bring risks of potentially limiting the capacity of this new model to fully attain its ambitions and that it is more fruitful to let the 'CE talk' walk on its own legs. This consideration is backed by scientific evidence suggesting that up to now

Management scholars have not yet provided sufficient guidance on how to address ecological problems more effectively (Montiel and Delgado-Ceballos 2014). Therefore, Management scholars would not move much forward if guidance is linked in some ways to weak models. Secondly, sustainable development initiatives have been implemented within the prevailing linear mindset (Sauvé et al. 2016). Therefore, associating the circular model with sustainable development would appear as an oxymoron. Thirdly, managers are confronted with a plethora of corporate sustainability definitions (Zollo et al. 2013) and 'sustainability' problems are framed as 'wicked' issues (Haigh and Hoffman 2012; Waddock and McIntosh 2011), i.e. as complex problems, with cause and effect difficult to establish, and thus hard to solve (Rittel and Webber 1973). Hence, could the overlapping of different constructs help them to navigate the 'sustainability cloud', improve their understanding and follow-up with action? Fourthly, for the many originators, the CE 'concept remains eclectic' (EMF et al. 2015, p. 23), its comprehension is fairly low (de Jesus and Mendonça 2018; Preston 2012) and confusion on the meaning of the words CE exists (Gallaud and Laperche 2016; Murray et al. 2015). Consequently, aiming for conceptual clarity in the literature that should inform management practices would seem to be appropriate and this would be the case also for theory building.

A brief diversion into the criticism that the CE has attracted is now necessary to paint a more balanced picture of its potential and it is accomplished next. To begin with, Allwood (2014) has argued that the CE 'might be technically feasible if global demand for both the volume and composition of products [is] stabilized' (p. 446). That is to say that efficiency and effectiveness strategies alone, i.e. doing more with less and ensuring materials quality so that they are suitable to subsequent cycles of production and use, are inadequate to attain more environmentally sustainable production systems (Bocken and Short 2016; De Man and Friege 2016). Efficiency and effectiveness need to be coupled with sufficiency strategies, i.e. reduced consumption (ibid.). Yet, sufficiency would seem to be at odds with circular strategies which could lead to uptakes in resource demand and consumption, given that new customers in both higher and lower end market segments can be reached with bespoke and less expensive products respectively (Kortmann and Piller 2016). Hazen et al. (2016) offer a complementary perspective on the role of consumers in a CE warning about the potential consequences

for the scalability of the model following from limited consumers' preferences towards remanufactured goods. For other studies, CE ambitions are to be more adequately assessed. Products according to CE principles do not always have lower environmental impacts, e.g. the recovery of materials from electronic consumer products results in additional ecological impact (De Man and Friege 2016). Despeisse et al. (2017) are sceptical about whether advanced manufacturing technologies can effectively enable more circular production systems and over their potential beneficial effects from a sustainability perspective. Cullen (2017), drawing on thermodynamics laws, argues that the CE is not fully attainable in practice. He counsels that there will be always material losses in closed-loop cycles and that their energy requirements, often overlooked in CE analyses, cannot be fulfilled exclusively with renewable energy though Cooper et al. (2017) analysing the effect on energy use of CE strategies, found that these 'have the potential to reduce the global energy use relating to economic activity by 6%-11%' (p. 1366). Rizos et al. (2016) advice that there are number of factors internal and external to organisations that can impede the implementation of more circular business strategies like difficulties in accessing financial capital and assessing the potential value creation opportunities, the lack of a supportive corporate culture and collaboration across supply chains.

A full examination of the limits and of the unintended consequences of the CE is beyond the scope of this book. Clearly, there are aspects of the CE proposition that needs additional investigation as emerged and scholars in other disciplines (e.g. material scientists, life cycle analysis and energy experts, biologists) are certainly better equipped than this author in performing these analyses, which are more than welcomed to advance our understanding of the CE and of its implications. However, these comprehensive assessments should be conducted without bringing risks of 'throwing away the baby with the bath water', which rather appears to be the case in the publications exploring potential limitations and negative consequences of a CE. There is much merit to the CE thinking. It is forging a positive, alternative way of framing the relationship between economy and ecology which, together with its nascent applications, seem to be more powerful than other concepts ever before in moving us towards a more ecologically responsible economy. In what follows, an overview of the origins of the CE thinking is presented.

2.4 The Circular Economy: Originators

The CE thinking, though gaining particular momentum now, is not new as its foundations, which can be found in Economics, Industrial Ecology and Management Studies, date back to the late 1960s. The perspectives offered by these different disciplines though differing in details and focus, share the need for more resource-efficient industrial processes.

The economist Kenneth Boulding in *The Economics of the Coming Spaceship Earth* (1966), used the metaphor of a spaceship to portray earth as a closed system. Such a metaphor is powerful to raise the issue of using finite natural resources more wisely: in a spaceship with limited resources available, waste has to be converted into subsistence. A closed economy would replicate the functioning of the ecosystem where the output of one process becomes the input of another process (waste is not conceived as such). Subsequently, other two economists, Pearce and Turner (1990), saw economy as closed and circular and they first proposed the CE term and as a path for growth within ecological limits. The 'astronaut's' perspective of the economy is not dissimilar from the 'sailor's' perspective of Dame Ellen MacArthur. The fastest solo sailor to circumnavigate the world in 2004, she founded the Ellen MacArthur Foundation in 2010. Dame Ellen MacArthur comments: 'sailing around the world against the clock in 2004, I had with me the absolute minimum of resources in order to be as light, hence as fast, as possible. At sea, what you have is all you have, stopping en route to restock is not an option and careful resource management can be a matter of life or death – running out of energy to power the autopilot means you can be upside down in seconds. My boat was my world, I was constantly aware of its supplies limits and when I stepped back ashore, I began to see that our world was not any different. I had become acutely aware of the true meaning of word 'finite', and when I applied it to resources in the global economy, I realised there were some big challenges ahead' (EMF 2017).

The CE has also its roots in the area of Industrial Ecology where a more efficient use of resources and materials is advocated. The field emerged in the 1990s (Desrochers 2002; Gibbs and Deutz 2007) following the publication by Frosch and Gallopoulos (1989), two General Motors senior executives, launching the analogy between industrial systems and ecosystem whereby the former should work

by replicating the functioning of the latter (Lifset and Boons 2012). The research in the field of Industrial Ecology has mainly focussed on industrial metabolism involving 'analysis of material flows on different levels and various scales' (Bringezu 2003, p. 34), and on industrial symbiosis which focusses on the exchange of by-products, materials and energy between companies in geographical vicinity, generally within eco-industrial parks, whereby the outcome of one industrial process becomes the input for a different process (Chertow 2000). The focus of Industrial Ecology has been the technical side: considerations of which technologies could make it possible to close materials and energy loops, rather than how such change could be enacted at the social level (Blomsma and Brennan 2017; Lifset and Boons 2012; Wells 2013).

In the Management literature, originators of the CE can be found in the work on Natural Capitalism (Lovins et al. 1999), closed-loop supply chains (e.g. Linton et al. 2007; Wells and Seitz 2005), Biomimicry (Benyus 2002), Cradle-to-cradle® (Braungart et al. 2007) and Blue Economy (Pauli 2010). The concept of Natural Capitalism is attributed to Lovins, Lovins and Hawken, following from their formative article in the Harvard Business Review in 1999. They define it as 'what capitalism might become if its largest category of capital – the natural capital of ecosystem services – were properly valued' (Lovins et al. 1999, p. 146). The case for Natural Capitalism follows from recognition that industrial capitalism has failed to take into account the full value of natural capital, and as a consequence, it has produced wasteful industrial processes (Hawken et al. 2000). To stop the wasteful use of natural resources, they advocate a different way of conceiving business processes, involving companies achieving competitive advantage from radically developing a more harmonious relationship with the natural environment. They suggest this can be attained by following some intertwined steps. Firstly, they propose that companies improve natural resources productivity, becoming more eco-efficient. Secondly, and fundamentally, Natural Capitalism aims at not just reducing waste but eliminating it. The approach they advocate to achieve this is for industrial practices to replicate the principles in natural cycles where waste does not occur. This implies implementing closed-loop production processes, where disposed products at the end of their useful life are recovered and components are either reused as input materials for new production processes or composted to produce nutrients for the natural environment. Following the implementation of the first two steps, companies might modify further their business practices

by shifting from selling products to selling services, bringing potential benefits to both producers and consumers. Under this system, producers preserve the ownership of products and are responsible for providing maintenance over time, and thus an incentive for designing more durable products is in place (ibid.). Therefore, producers could benefit from reduced primary materials costs (products are returned to the manufacturer at the end of their useful life and thus secondary raw materials can be recovered), and from long-lasting relationships with customers (ibid.). The gain to customers is that they can rely on a flow of particular performances to satisfy their needs without buying expensive goods and appliances (ibid.). For instance, Hawken et al. (2000) argue that consumers could benefit from the service of having clothes cleaned via the payment of a monthly fee instead of purchasing a washing machine. In Natural Capitalism, it is also argued that not taking measures to restore the ecosystem can have both direct and indirect effects on companies' profitability. The direct impact results from a shortage of ecosystem services which can impede human and business activities from taking place (ibid.). The indirect impact results from poor company reputation and legitimacy that translate in customers' boycotts and sales decline (ibid.).

Biomimicry (Benyus 2002) is the study of nature and it can be used to implement innovative solutions to societal challenges that find inspiration in natural processes. Studying a leaf to invent a better solar cell is an example according to the author. It is based on three principles: 'nature as model' (what can we apply from it?), 'nature as measure' (based on ecological principles, how can the sustainability of our innovations be assessed?) and 'nature as mentor' (what can we learn from it?). Cradle-to-cradle® (Braungart et al. 2007) is a design philosophy wherein materials are conceived either as 'technical nutrients' (p. 1343) or as 'biological nutrients' (ibid.). Whereas the former (synthetic and mineral materials) can be used over and over again within subsequent production processes, the latter (renewable materials) are designed to be safely disposed of to the natural environment as they do not contain any chemicals that could harm the ecosystem. Designing materials in this way allows to recover and preserve the value of resources over time, a process that the authors call 'upcycling' (p. 1338) as opposed to 'downcycling' (ibid.) associated with the recycling of products that are not designed for disassembly and recovery. Closed-loop supply chains, consisting of forward and reverse supply chains (Guide and Van Wassenhove 2009; Wells and Seitz 2005), are also related to CE principles insofar as they enable

collecting back products at the end of their useful life for repairing, refurbishing, remanufacturing and recycling.

Another originator of the CE thinking is The Performance Economy (Stahel 2006). The main argument behind the performance economy is that of suggesting, like Natural Capitalism, the shift towards a functional service economy, based on selling services rather than products to reduce resource (materials and energy) consumption and boost job opportunities. The architect and industrial analyst Stahel also highlights the economic gains deriving from reusing, repairing, refurbishing and remanufacturing products. These end of life materials recovery strategies compared to recycling reduce materials consumption can save 75% of the energy embedded into a product and are labour intensive (ibid.). The Blue Economy, introduced by the former Ecover CEO Gunter Pauli, summarises many of the principles contained in the perspectives presented so far: increased resource efficiency, innovations inspired by nature, waste as by-product to use in other production processes, using resources that are local, and gravity and solar energy as the main sources of energy (Pauli 2010). Table 2.1 indicates the originators of the CE thinking.

Earlier academic writing on the CE, mainly within Economics and particularly Ecological Economics (e.g. Boulding 1966; Pearce and Turner 1990) shared a resemblance with Industrial Ecology, in presenting the need for change at the macro system level, but not investigating sufficiently societal-level mechanisms supporting changes. In addition, Industrial Ecology and similarly, closed-loop supply chains have focussed prevalently on their technical, engineering angles more than on the

Table 2.1 Circular economy originators

Circular economy	**Economics** (Boulding 1966; Pearce and Turner 1990) **Blue Economy** (Pauli 2010) **Closed-loop Supply Chains** (e.g. Guide and Van Wassenhove 2009; Wells and Seitz 2005) **Biomimicry** (Benyus 2002). **Cradle-to-cradle®** (Braungart et al. 2007) **Natural Capitalism** (Lovins et al. 1999) **Performance Economy** (Stahel 2006) **Industrial Ecology** (Frosch and Gallopoulos 1989; Lifset and Boons 2012)

implications for their development from a business perspective (Blomsma and Brennan 2017; Johnsen et al. 2014). By contrast, Natural Capitalism and The Performance Economy consider more in detail the role of business model innovation in a resource-efficient economy alongside the need for wide, system-level changes to support such an economy (e.g. tax reform). Biomimicry and Cradle-to-cradle® are closer to design and innovation philosophies and The Blue Economy can be considered as sitting between the business-centred approaches on the one hand and the design and innovation philosophies on the other hand. The CE thinking builds on and integrates substantially these different perspectives just outlined but it is also different insofar as it gives significant more attention to the motivations and role of business organisations in enabling change (Domenech et al. 2013; Pollard et al. 2016). Notably, as emphasised in the first paragraph of this chapter, the CE 'is led by business for a profit within the rules of the game decided by an active citizenship in a flourishing democracy' (Webster 2013, p. 543). The CE approach is also different for its potential catalytic function having created a conversational space where discussion and best practices about resource efficiency meet (Blomsma and Brennan 2017) and also because it stimulates businesses to 'doing good' rather than 'doing less bad' with innovative business practices that are 'restorative' and 'regenerative' (Pollard et al. 2016; Webster 2013).

2.5 Summary

This chapter has focussed on what is understood by the term CE and comparing and contrasting with the associated concepts of sustainable development and corporate sustainability. It has argued that the CE offers an effective model that may inspire businesses to foster corporate strategies that encourage the development of an economy that thrives within ecological limits. In offering a critical discussion on the limits of other approaches to developing an ecologically sustainable economy, the case is made for why the CE offers the most opportunity for making obsolete the ecologically destructive linear economy.

This chapter has started articulating some of the reasons why this book differs from previous attempts in the emerging CE practitioner and academic literature and more broadly in the sustainable development literature. First of all, it departs from the prevailing negative rhetoric in vogue among environmental publications. It does not fall in the 'doom

and gloom' approach but rather it leverages on the CE metaphor and thinking as a model for inspiring business leaders' involvement towards an economy that is prosperous but not at the expenses of the natural environment. The CE thinking and related initiatives are involving actors across many spheres of our society, including corporations, in the development of measures that are crucial for its implementation. Recalling Buckminster Fuller's thought, this empowering feature of the CE thinking brings hope of succeeding in positively transforming our economy. Secondly, this book does not place the CE and sustainable development in relation to each other. By contrast, the relationship between the two is subject of some academic debates. Thirdly, while the origins of the concept of the CE are articulated here, differences are more markedly highlighted and the strengths of the CE framework are emphasised. In the next chapter, attention is given to business models and business model innovation which is one of the crucial constituents of a CE (EMF and McKinsey 2012; Hopkinson et al. 2016; Lacy and Rutqvist 2015; Scheepens et al. 2016).

It is clear that the transition towards a CE would not happen without costs and wider institutional, societal level changes as 'no single intervention on its own will create the tipping point for a circular economy. It is a systems problem that needs a systems solution' (Green Alliance 2013, p. 28). The required systemic changes are crucial for the scalability of the CE model and have been delineated in a number of publications (see, e.g., Aldersgate Group 2017; EASAC 2015; Ex'tax Project 2016; Green Alliance 2013; ING 2015). However, these are not the subject of this book, which, instead, focusses on the business aspect of the CE and thus on the role of companies in the transition towards the CE and the transformation they have to undertake to rip its benefits. Consequently, the next two chapters are occupied by discussing circular business models.

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CHAPTER 3

Business Models and Circular Business Models

Abstract This chapter responds to the need for more clarity in the lexicon in use in the circular economy field. Therefore, it outlines a conceptualisation of the circular business model. This chapter presents a set of propositions leading to a preliminary conceptualisation of the circular business model by merging themes from the business model literature with the implications for business models deriving from the application of the circular economy thinking inferred from practical examples and the literature. This chapter includes recommendations for future studies on circular business models.

Keywords Business models · Circular business models
Value proposition · Value creation and delivery · Value capture

3.1 Introduction

The visibility of the CE framework has increased at the academic, policy and business levels concurrently with the establishment of the EMF. However, as is often the case with a new concept, there is a need for more clarity in the lexicon in use. Confusion on the meaning of the words CE and divergence in the CE terminology in use exist (Bocken et al. 2016; Gallaud and Laperche 2016; Murray et al. 2015). In the nascent academic literature on the CE, some definitions of the CE are offered. However, it is easier to spot differences than similarities among them, and

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in some cases, they add complexity to the terminology in use bringing risks of complicating rather than simplifying the concept. Geissdoerfer et al. (2017) define the CE as: 'a regenerative system in which resource input and waste, emission, and energy leakage are minimised by slowing, closing, and narrowing material and energy loops. This can be achieved through long-lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling' (p. 759). Murray et al. (2015) propose: 'the Circular Economy is an economic model wherein planning, resourcing, procurement, production and reprocessing are designed and managed, as both process and output, to maximize ecosystem functioning and human well-being' (p. 9). Then Korhonen et al. (2018) suggest: 'circular economy is an economy constructed from societal production-consumption systems that maximizes the service produced from the linear nature-society-nature material and energy throughput flow. This is done by using cyclical materials flows, renewable energy sources and cascading-type energy flows. Successful circular economy contributes to all the three dimensions of sustainable development. Circular economy limits the throughput flow to a level that nature tolerates and utilises ecosystem cycles in economic cycles by respecting their natural reproduction rates' (p. 39). De Jesus and Mendonça (2018) add: 'the CE can be defined as a multidimensional, dynamic, integrative approach, promoting a reformed socio-technical template for carrying out economic development, in an environmentally sustainable way, by re-matching, re-balancing and re-wiring industrial processes and consumption habits into a new usage-production closed-loop system' (p. 76).

The most comprehensive and commonly used CE definition, already presented in Chapters 1 and 2, conceptualises the CE as 'an industrial system that is restorative or regenerative by intention and design [that] replaces the end-of life concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impairs reuse and aims for the elimination of waste through the superior design of materials, products, systems, and within this, business models' (EMF and McKinsey 2012, p. 7). This definition makes it clear that business models are one of the crucial constituents of such an economy, and this is confirmed in other studies (Bocken et al. 2016; De los Rios and Charnley 2017; Hopkinson et al. 2016; Lacy and Rutqvist 2015; Scheepens et al. 2016) and in subsequent EMF's research, which identifies new business models as one of the building blocks of a CE (EMF 2015). Yet, there is very little attention and clarity on circular business models in

the academic literature to date (Antikainen and Valkokari 2016; Blomsma and Brennan 2017; Goyal et al. 2016; Kirchherr et al. 2017; Lewandowski 2016). The intention of this chapter is to bring some clarity in the emerging CE literature by providing a more systematic conceptualisation of the circular business model. This is potentially useful given the limited contribution to the topic that has come from business disciplines to date (Moreno et al. 2016). A diversion into the business model concept and related literature is necessary first to understand what a business model refers to and to consider to what extent the CE thinking challenges traditional business models thinking. Consequently, the remaining parts of this chapter are organised in the following way. Section 3.2 reviews the business model literature to highlight the definition of the business model and its main characteristics. Section 3.3 analyses the academic, practitioner and grey literature that has given attention to business model innovation in the CE and identifies some examples from the business community that clarify what the application of CE principles means in practice and its implications. The conceptualisation of the circular business model, currently almost inexistent in the literature, is presented in Sect. 3.4 by merging themes from the business model literature with the implications for business models deriving from the application of the CE thinking inferred from practical examples and the literature. This conceptualisation is closer to a typology (purely theoretically driven) than to a taxonomy (purely empirically driven). The chapter then concludes with recommendations for future studies on circular business models. Recommendations concern the choice of the industry, the type of company to investigate and the most suited research method.

3.2 Business Models

Total agreement on what a business model really is does not yet exist (Arend 2013; Casadeus-Masanell and Ricart 2010; DaSilva and Trkman 2014; Osterwalder et al. 2005; Zott et al. 2011). Yet, the concept of the business model (BM hereafter) is subject of considerable interest within the business and academic communities (Amit and Zott 2012; Baden-Fuller and Morgan 2010; Lecocq et al. 2010; Wirtz et al. 2016). BM innovation is of major interest to managers (Casadeus-Masanell and Ricart 2011; IBM 2015) as it is considered an important source of competitive advantage (Spieth et al. 2014), even more than product and service innovation (EIU 2005). Interest in BMs emerged largely as a consequence of the advent of the Internet and

the associated information and communication technologies in the 1990s, because this created new opportunities and challenges for value creation and capture (e.g. e-commerce) (Lecocq et al. 2010; Wirtz et al. 2016), but attention towards the BM outlived the 'dot-com bubble' (DaSilva and Trkman 2014, p. 381).

A measure of the level of interest is that various special issues of academic journals have been devoted to BMs between 2010 and 2015 (e.g. *Harvard Business Review*; *International Journal of Innovation Management*; *Long Range Planning*; *R & D Management*; *Strategic Entrepreneurship Journal* and *Strategic Organization*). Nonetheless, the lack of clarity concerning circular BM comes as no surprise placed in the context of the BM literature. At the turn of the century, Porter (2001) argued that 'the definition of a business model is murky at best' (p. 73) and ten years later, Zott et al. (2011) suggested that there had been little change claiming that 'researchers frequently adopt idiosyncratic definitions that fit the purposes of their studies but that are difficult to reconcile with each other' (p. 1020) and frustrated, that 'the term business model in its current use is not one concept; it is many concepts' (pp. 1034–1035). This is confirmed by more recent studies with Wirtz et al. (2016) arguing that the BM term is not always applied in a coherent manner but rather is used interchangeably with other terms like 'business idea' or 'revenue model'. However, authors in the BMs literature seem to have found some accord on 'value' as an important element to understand the BM concept. Notably, Zott et al. (2011) argue that BMs 'seek to explain both value creation and value capture' (p. 1020). Teece (2010) describes a BM as 'the design or architecture of the value creation, delivery and capture mechanisms employed. The essence of a business model is that it crystallizes customer needs and ability to pay, defines the manner by which the business enterprise responds to and delivers value to customers, entices customers to pay for value, and converts those payments to profit through the proper design and operation of the various elements of the value chain' (p. 191). Osterwalder and Pigneur (2010) view the BM as 'the rationale of how an organization creates, delivers, and captures value' (p. 14) and propose an extensive BM framework, which they call 'canvas', based on the following nine dimensions: *customer segments, value propositions, channels, customers' relationships, revenue stream, key resources, key activities, key partnerships* and *cost structure*. Richardson (2008) proposed a simpler yet explanatory BM framework grounded on 'value' and comprising the 'value proposition' to the customer

Table 3.1 The BM concept in the BM literature

	The BM literature is relatively recent (can be traced back to the 1990s)
The business model	'Value' is a key theme in the BM literature: the BM as 'the rationale of how an organization creates, delivers and captures value' (Osterwalder and Pigneur 2010, p. 14); the BM 'describes the design or architecture of the value creation, delivery and capture mechanisms employed' (Teece 2010, p. 191); BMs as means to create and capture value (Zott et al. 2011); BM frameworks are centred on value, e.g. Richardson's (2008) framework includes value proposition, value creation and delivery, and value capture

(customers' offering), the 'value creation and delivery' (how value for customers is created and delivered and thus including resources and capabilities, activity system and supply chain) and 'value capture' (reflecting a firm costs and revenues structure and flow). Table 3.1 summarises the key findings concerning the BM concept in the BM literature.

Next, a review of the academic, practitioner and grey literature which has given attention to BM innovation in the context of the CE is presented.

3.3 Circular Business Models: State of the Art in the Current Literature

The emphasis on new BMs or the transformation of existing ones, is understandable when placed in the context of the CE proposition. Its implementation would affect all the elements of the BM framework, namely value proposition, value creation and delivery and value capture as the following example illustrates. In circular modes of production and consumption, products with a medium to long life cycle (e.g. domestic appliances) need not follow the conventional sale transaction but instead be leased or accessed under pay for use mechanisms, i.e. customers pay for the right to use the product over a long period of time, with payment related to performance (EMF and McKinsey 2012; Lacy and Rutqvist 2015). Under this system, producers preserve the ownership of the product and are responsible for providing maintenance over time, which provides an incentive for designing more durable products (Hawken et al. 2000). Producers could benefit from reduced primary materials costs (products are returned to the manufacturer at the end of their useful life and thus secondary raw materials can be recovered),

and from long-lasting relationships with customers (ibid.). They, in turn, can rely on a flow of performances without capital expenditure on expensive goods (ibid.). Clearly, there is a new value proposition under this system (e.g. with access over ownership customers' value increases) and so it is for the value creation and delivery (e.g. capabilities in maintenance and repair; customer relationships need to be developed) and value capture (e.g. revenues derive from selling services rather than goods; potential reduced costs). *Bundles*, a Dutch start-up, offers its customers the service of having their clothes washed instead of selling washing machines via supplying smart appliances that are connected to the internet and with fees charged on a pay per wash basis (EMF 2017a). *Bundles* install only machines that are durable and made of components that are recyclable at the end of life so that when these are returned they can be repaired and refurbished and enter a next cycle of use (ibid.).

The importance of new BMs for a CE is frequently cited in early practitioner literature, but there are only hints on their possible nature. There is nonetheless an understanding that some will be performance-based payment models, rather than the normal (consumer) ownership models, which are conducive to designing products for longevity and reuse (EMF and McKinsey 2012). More recently, a set of measures that could be implemented to pursue BM innovation in accordance with the CE principles outlined in Chapter 2, has been proposed under the nomenclature of the 'ReSOLVE' framework (EMF et al. 2015). These measures are: 'Regenerate, Share, Optimise, Loop, Virtualise and Exchange—together, the ReSOLVE framework' (EMF et al. 2015, p. 25). *Regenerate* demands a shift towards renewable materials and sources of energy as well as investments in natural capital along returning back to nature renewable materials. *Share* refers not only to the possibility of a shared utilisation of goods among users but also to the maximisation of resources use along the product life cycle through for instance reuse, increased durability and design for repair/upgrade. *Optimise* involves improving products and processes efficiency. *Loop* implicates closing production loops via returning technical materials to use (e.g. repair, remanufacturing, recycling) and renewable materials to cascading usage and ultimately to nature. *Virtualise* refers to the possibility of delivering utility in the absence of physical products (e.g. online music, books) and *Exchange* relies on the use of innovative technologies and materials enabling more resource-efficient industrial processes. Table 3.2 contains a selection of business innovations based on CE principles.

Table 3.2 Examples of business innovations based on CE principles

Active Disassembly designs products using materials that can be recovered and dismantled at the end of product life cycle in a non-destructive way
(Exchange)
Airbnb enables homeowners to rent spare bedrooms to travellers
(Share)
British Sugar converts waste and emissions deriving from its core sugar production into inputs for new products lines (e.g. animal feed, betaine for the cosmetics industry, bioethanol, soil conditioner)
(Regenerate, Loop)
Caterpillar, the manufacturer of machinery for the construction industry, produces heavy machinery that is suitable for remanufacturing, repairing and upgrade
(Share, Loop)
Daimler, the German automotive manufacturer, launched Car2go in 2008. This service enables customers' access to a car which can be located, reserved and accessed by phone, website and mobile app. Users pay for the time travelled with no additional fees for deposit, parking or fuel
(Share, Exchange)
Desso has established a take-back programme for its carpets and products containing recyclable yarn that can be used over and over again without losing its quality
(Loop, Optimise)
Ecovative produces packaging products from agricultural waste. This packaging is compostable at the end of its useful life and performs the same as packaging materials derived from synthetic sources
(Regenerate, Loop, Exchange)
FLOOW2 is a business-to-business asset sharing virtual platform where businesses can share equipment as well as skills
(Share, Optimise)
Girl Meets Dress™ enables customers to rent designer dresses and accessories
(Share)
Interface, the leading manufacturer of carpet tiles, reuses the nylon recovered from fishing nets abandoned in the oceans to produce one of its carpet tiles collections
(Exchange)
Michelin, a leading tires manufacturer, through its tires as service model, allows fleet customers to lease instead of purchasing tires. Consequently, customers do not own the tires and the contract is based on a pay per mile fee. *Michelin* provides maintenance as well and collects back worn-out tires which can be reprocessed into feedstock for the manufacturing of new tires or something else
(Share, Loop)
Miele designs washing machines lasting longer (about 20 years) than the average lifespan of a washing machine (10 years). Products are also designed for upgradability
(Share, Loop)
Mud Jeans allows its customers to lease instead of buying organic cotton jeans over the payment of a monthly fee, and at the end of their useful life they can be converted into new denim
(Share, Loop)
Marks & Spencer, a leading UK's retailer, collaborates with Oxfam, a not-for-profit organisation, to facilitate recycling of used Marks & Spencer's clothes, shoes and bags. These items can be brought into Oxfam stores where customers receive a voucher that can be spent in Marks & Spencer's stores. The collected items are either resold or recycled and the money raised is donated to Oxfam in support of its work
(Share, Optimise, Loop)

(continued)

Table 3.2 (continued)

Philips, the global manufacturer of consumer electronics (e.g. light bulbs and healthcare equipment), has launched lighting as service. Under this system, customers do not own the lighting equipment but they have access to it and they are charged on the basis of usage **(Share, Exchange)**
Patagonia designs sport clothing that lasts longer, is suitable for repair and recycling at the end of its useful life **(Share, Loop)**
Rolls-Royce, which designs and manufactures power systems to be used in air, on land and at sea, introduced Power-by-the-Hour™ in 1962. This system offers access to jet engine, monitoring in use, maintenance and accessory replacement on a flying per hour basis **(Share)**
Splosh sells very innovative household cleaning products. The company initially provides customers with a 'one-off starter box' which contains a range of bottles, each filled with a sachet of concentrated liquid that can be used to prepare detergents at home. Bottles can be used over time which contributes to reduce packaging waste, and new sachets when needed are ordered and delivered by post **(Share, Optimise, Exchange)**
Spotify sells and delivers music online **(Virtualise)**
Timberland, a leading manufacturer and retailer of outdoors wear, produces walking boots (Earthkeeper®) that are suitable for disassembly and incorporate components (e.g. rubber outsole, lining and laces) made from recycled materials **(Share, Exchange, Loop)**
TurningArt, enables individuals to rent rather than own art. It also allows art inventory that is not in use to be placed on the market **(Optimise)**
Xerox does not sell printers but rather printer services and its printers are designed so that at the end of their useful life they can be remanufactured **(Share, Loop)**

Each example is placed in relation to the measures in the ReSOLVE framework (EMF et al. 2015). The examples are taken from relevant literature (Bocken et al. 2016; EMF 2017a; Lacy and Rutqvist 2015; WRAP 2017a). The association between each example and the measures in the ReSOLVE framework is done by this author.

The ReSOLVE framework is valuable in proposing a set of measures suggesting how to align a BM to the requirements of a CE, but it does not define what a circular business model (CBM hereafter) is. This is why a search of the academic literature was employed to find a conceptualisation of the CBM using bibliometric methods, a growing research method within the domains of Management and Organisation Studies to perform literature search (Zupic and Cater 2015). Bibliometric research is used for the 'description, evaluation, and monitoring of published research' (ibid., p. 430). The academic literature review was performed with the academic databases Scopus, ProQuest Business Collection,

EBSCOhost and Web of Science, using 'circular economy and business models' and 'circular business model' as keywords. Only specific CE terminology was used to find a conceptualisation of the CBM. The CE thinking as such is new though the ideas behind the CE propositions are not and the CE literature needs clarity as outlined. Therefore, to avoid confusion with concepts developed in fields that are linked to the CE literature and to find a definition of BM specific to the CE context, alternative keywords (e.g. sustainable business models) were not used. The suitability of the approach taken can be further justified if we consider that 'the notion of sustainable business model is often used in an inconsistent way' (Lüdeke-Freund and Dembek 2017, p. 1669) and that very recent CE review studies support the same perspective recognising the importance of clarity (D'Amato et al. 2017; Geisendorf and Pietrulla 2017). The literature search was conducted in August 2017 and only publications written in English were considered. Table 3.3 summarises the results obtained from the academic literature search.

The relevant titles of peer-reviewed publications were subsequently processed to find a conceptualisation of the CBM, which led to the reading of articles abstracts and main text. Only one academic article (Linder and Williander 2015) contains a conceptualisation of the CBM which will be explored in the subsequent sections of this paragraph. Therefore, to conduct a more comprehensive literature search, the grey and practitioner literature were also included in addition to the originators of the CE thinking. The grey and practitioner literature was manually searched starting from the websites of well-known organisations that have been involved in the production of reports and other publications on the CE

Table 3.3 Results of the academic literature search

Academic databases	*Number of publications*
'Circular economy and business models' as keywords	
Scopus	10
ProQuest business collection	5
EBSCO	5
Web of science	5
'Circular business model' as keywords	
Scopus	13
ProQuest business collection	5
EBSCO	7
Web of science	8

and it included publications that were referenced in the sample initially reviewed. In this case, only publications written in English were reviewed too. Overall, the comprehensive literature review reveals: (a) the availability of different constructs that in some cases are directly conceptualised as CBMs archetypes, categories, frameworks, elements, canvas and strategies and in other cases are classified by this author as CBMs elements/categories; (b) an almost inexistent definition of the CBM. An overview of the different constructs available in the literature is presented in Table 3.4.

As Table 3.4 shows, CBMs elements, categories, archetypes, strategies, framework and canvas are developing within academic and practitioners' studies. Though there is some overlapping between the constructs presented in Table 3.4, they are valuable because they offer some guidance towards actual configuration of CBMs. However, the academic literature and the business community would benefit from a more systematic conceptualisation of the CBM. Zott et al. (2011), in their extensive review of the BM literature, lamented a missing definition of the BM concept in several publications and warned that this is not beneficial to advance understanding and research on the topic. Zott and colleagues' findings in the BM literature show similarity with the characteristics of the CE literature produced to date whereby there seems to be a proliferation of different constructs (categories, canvas, elements, archetypes, strategies, frameworks for CBMs) in the absence of a common ground elucidating what the CBM refers to in the first place, with potential negative implications for research and implementation. Therefore, conceptualising the CBM not only adds to the CE literature where CBMs are investigated marginally (Antikainen and Valkokari 2016; Blomsma and Brennan 2017; Lewandowski 2016; Lieder and Rashid 2016) but also provides a unifying frame of reference to develop further comprehension of the CBM concept and thus contributing to the much-needed clarity and theory building in the CE literature. In addition, clarity in relation to what a CBM refers to is beneficial to implementation within the business community.

Very little in terms of CBMs conceptualisation in the academic literature has been published to date, with Linder and Williander's (2015) study as the one exception. They define the CBM as 'a business model in which the conceptual logic for value creation is based on utilizing economic value retained in products after use in the production of new offerings. Thus, a circular business model implies a return flow to the

Table 3.4 CBMs archetypes, canvases, categories, elements, frameworks and strategies

• *Performance/usage-based payments models* (leasing, hiring); • *Product-service systems* (a combination of products and services) • *Usage-based service* (leasing or renting); • *Result-based integrated solutions* (value proposition as a combination of products and services)	**CBMs elements** (EMF and McKinsey 2012)
• *Product-service systems* (a combination of products and services); • *Dematerialised service* (e.g. accessing music online); • *Hire and leasing* (hire or leasing instead of purchasing an item); • *Collaborative consumption* (e.g. car sharing, home sharing); • *Incentivised return and reuse* (customers are encouraged to return back a product at the end of its useful life for an agreed amount of money. The product is then recycled or refurbished); • *Asset management* (improving efficiency in the usage of equipment so that for example, when this is not in use it can be leased to other businesses); • *Collection of used products* (products are collected back at the end of their useful life by a service provider and are then directed to recycling/refurbishing/remanufacturing/reusing); • *Long life* (products designed to last for longer); • *Made to order* (over-stocking of products is avoided); • *Bring your own device* (e.g. employees are provided with one computer to use at home and at work and this is useful in reducing the quantity of products needed to satisfy a need)	**CBMs elements/ categories** (WRAP 2017a)
• *Incentivised returns* (customers are encouraged to return a product at the end of its useful life over the payment of an agreed amount of money. Returned products can then enter reuse/refurbish/remanufacture/recycle routes); • *Hire and lease* (customers are allowed to rent a product over a short period of time or to lease it over a longer period)	**CBMs elements/ categories** (Aldersgate Group 2015)
• *Circular supply chain* (renewable or recyclable inputs to production processes); • *Recovery and recycling* (material/energy recovery from products at the end of life); • *Product life extension* (repairing, upgrading, remanufacturing, extended product durability and refurbishing); • *Sharing platforms* (collaborative consumption); • *Product as a service* (leasing rather than selling)	**CBMs elements/ categories** (Lacy and Rutqvist 2015)
• *Slowing loops* (access and performance model; extending product value, i.e. recovering the residual value of products; long life; encourage sufficiency, i.e. reduced consumption through product durability, upgradability); • *Closing loops* (extending resource value, i.e. wasted materials are recaptured for the production process; industrial symbiosis, i.e. waste from one company feeds another company's production process)	**CBMs strategies** (Bocken et al. 2016)
• *Loop 1* (reusing, repairing, remanufacturing, technological upgrading); • *Loop 2* (recycling production waste and end of life products; natural cycles, i.e. using biomass as a renewable energy source such as biodiesel from plants)	**CBMs elements/ categories** (Stahel 2006)

(continued)

Table 3.4 (continued)

• *Product design* (products are designed to support end of life strategies, i.e. reuse/recycle/repair/refurbish); • *Service- and function-based models* (services enabling connection between overstock products and potential users are provided, e.g. food banks); • *Collaborative consumption* (platforms enabling access to second-hand products, swopping and borrowing goods); • *Reuse* (second-hand/refurbished products are marketed); • *Repair* (products are repaired and remarketed at the end of their useful life); • *Recycling and waste management* (sorting and recycling services)	**CBMs elements/ categories** (Norden 2015)
Building blocks of a CBM: • *Value propositions*; • *Customer segments*; • *Channels*; • *Customer relationships*; • *Revenue streams*; • *Key resources*; • *Key activities*; • *Key partnerships*; • *Cost structure*; • *Take back systems*; • *Adoption factors* The author considers the elements of the Osterwalder and Pigneur's (2010) BM canvas, in addition, to take back systems and adoption factors as constitutive elements of the CBM canvas	**CBM canvas** (Lewandowski 2016)
• *Value propositions*; • *Customer segments*; • *Channels*; • *Customer relationships*; • *Revenue streams*; • *Key resources*; • *Key activities*; • *Key partnerships*; • *Cost structure*; The CBM canvas is built on Osterwalder and Pigneur's (2010) BM canvas and incorporates questions that prompt thinking about actual design of a CBM	**CBM canvas** (EMF and IDEO 2017)
• *Circular supplies* (waste from one process used as feedstock for a different one); • *Resource value* (the residual value of used resources is recovered and used into new materials); • *Product life extension* (enhanced product durability); • *Extending product value* (products are offered on a leasing basis to retain ownership and, therefore, benefits are accrued from the residual productivity of resources); • *Sharing platforms* (utilisation of products is increased via sharing)	**CBMs archetypes** (Moreno et al. 2016)
Solutions-based business models (customers' needs are satisfied through a flow of performances)	**CBMs elements/ categories** (Lovins et al. 1999)

(continued)

Table 3.4 (continued)

• *Circular product design* (products are designed to support end of life strategies, i.e. repair/upgrade); • *Classic long life* (the offering is based on product durability); • *Encourage sufficiency* (this model is based on selling low volumes of products with profitability ensured by higher prices); • *Circular materials* (renewable and recyclable materials enter the production process); • *Life extension* (spare parts and adds on are sold to support product usage for longer); • *Repair and maintenance service* (repair and upgradability are offered to prolong product use); • *Product leasing* (access over ownership); • *Product renting* (access over ownership); • *Performance provider* (a combination of products and services are offered to satisfy a particular need); • *Sharing platforms* (shared access/ownership); • *Sell and buy back* (products can be returned in a buy back scheme after an agreed period of time); • *Recaptured material supplier* (recovered materials and components are supplied as replacement for virgin ones); • *Refurbisher* (used products are refurbished and sold); • *Second-hand seller* (the offering relies on used products); • *Remanufacturer* (the offering is based on products made of recovered materials and components); • *Recycling facility* (waste is converted into raw materials); • *Recovery provider* (service of collecting back products to recover the residual value of materials); • *Process design* (services are offered to increase the reusability and recyclability of industrial products, waste and by-products); • *Value management* (services to support circular strategies, e.g. management of information, materials); • *Tracing facility* (services to support the uptake of secondary raw materials)	**CBMs categories** (Circle Economy 2016)
• *Material matchmaker* (the nexus between recoverable resources and potential users); • *Service matchmaker* (product life cycle is enhanced by offering services like repairing, refurbishing and restoring)	**CBMs elements/ categories** (Gorissen et al. 2016)
• *Commercial models*: sharing and exchange; contracts and services (e.g. leasing; rental); • *Operating models*: recovering, recycling, reselling	**CBMs elements/ categories** (Weetman 2017)
• *Value propositions*; • *Customer segments*; • *Channels*; • *Customer relationships*; • *Revenue streams*; • *Key resources*; • *Key activities*; • *Key partnerships*; • *Cost structure*; • *Drivers*; • *Stakeholders' involvement*; • *Sustainability impact*	**CBM framework** (Antikainen and Valkokari 2016)

(continued)

Table 3.4 (continued)

The authors consider the elements of the Osterwalder and Pigneur's (2010) BM canvas in addition to drivers, stakeholders' involvement and sustainability impacts as constitutive elements of a framework for CBM innovation	
Short cycle • *Pay per use* (one-off payment to access product use); • *Repair* (repair services to extend product lifetime); • *Waste reduction* (waste is reduced in the production process); • *Sharing platforms* (shared consumption); • *Progressive purchase* (over time small payments before purchase) *Long cycle* • *Performance-based contracting* (the manufacturer is responsible for the performance of the product over its entire life cycle); • *Take back management* (incentives are in place to ensure that products go back to the producer at the end of their life cycle); • *Next life sales* (products enter a new production process and then sale); • *Refurbish & resell* (products are refurbished and sold again) *Cascades* • *Upcycle* (materials value is upgraded and they are reused); • *Recycling* (waste handling and repurpose) (materials are cascaded across different usage); • *Collaborative production* (cooperation in the supply chain leading to closed-loop production chains) *Pure circles* • *Cradle-to-cradle*® (design products to attain fully circular material loops); • *Circular sourcing* (only materials and products that are fully circular are sourced) *Dematerialised services* • *Physical to virtual* (moving from physical to virtual products); • *Subscription-based rental* (product use over the payment of periodic fees) *Produce on demand* • *Produce on order* (production is on demand); • *3D printing* (3D printing is used to reduce waste); • *Customer vote (design)* (consumers are demanded to vote on which product to manufacture)	**CBM categories** (Van Renswoude et al. 2015)

producer from users, though there can be intermediaries between the two parties. The term circular business model, therefore, overlaps with the concept of closed-loop supply chains, and always involves recycling, remanufacturing, reuse or one of their sibling activities (e.g. refurbishment, renovation, repair)' (p. 2). CBMs are regarded as tools for creating value through the circulation of materials and resources once conceived as waste at the end of life but there are also some shortcomings in this conceptualisation of the CBM. It does not make explicit links to all the BMs components. Value capture is not considered, and the description of value creation appears to be used as synonym for

value capture and as if containing elements of the value proposition dimension. In addition, this definition does not seem to fully acknowledge the implications for BMs deriving from other CE strategies. For instance, the *Loop, Optimise* and *Share* measures in the ReSOLVE framework are taken into account (i.e. by talking about refurbishment, renovation, repair) though there is no mention of increased product durability, but links to *Regenerate, Virtualise* and *Exchange* are missing. Moreover, Linder and Williander's (2015) definition blurs the concept of the CBM with that of closed-loop supply chains, a combination of forward supply chains (from producer to consumer) and reverse supply chains (from consumer to producer) enabling components and materials to enter again the production process (Wells and Seitz 2005). Closed-loop supply chains can be part of the value creation and delivery system but cannot be identified with CBMs and overlapping two different constructs does not contribute to clarify the meaning of the CBM in the first place. Therefore, how can a more structured conceptualisation of the CBM be built? The next paragraph proposes a detailed process that is conducive to the identification of a set of propositions ultimately leading to a preliminary conceptualisation of the CBM.

3.4 Circular Business Models: Towards a Conceptualisation

It seems appropriate to arrange the conceptualisation of the CBM around 'value'. 'Value' is a central factor within the CE literature with the CE defined as 'an economy that provides multiple value creation mechanisms which are decoupled from the consumption of finite resources' (EMF et al. 2015, p. 23). The theme of 'value' is also pertinent within the BM literature where the BM concept is centred on 'value' and value related frameworks have been developed (e.g. Osterwalder and Pigneur 2010; Richardson 2008). Merging the 'value' dimension of the BM concept, as represented in the BM components (i.e. value proposition, value creation and delivery and value capture), with the implications for these components deriving from the application of CE principles, would lead to the identification of the qualifying features of the value proposition, value creation and delivery and value capture and thereby to the conceptualisation of the CBM.

A guiding tool for identifying the application of CE strategies in practice is the ReSOLVE framework (EMF et al. 2015), which is very useful since it groups under one umbrella a set of CE-related measures

reflecting CE principles (Regenerate, Share, Optimise, Loop, Virtualise, Exchange). To build the conceptualisation of the CBM is then necessary to choose a BM framework from the BM literature. Other studies (EMF and IDEO 2017; Lewandowski 2016) in the emerging CE literature shown in Table 3.4 have used Osterwalder and Pigneur's (2010) extensive BM framework (based on nine dimensions) to propose CBMs canvases. However, an alternative and potentially more fruitful path is to build the conceptualisation of the CBM on Richardson's (2008) BM framework. This is for two reasons. Firstly, Richardson's framework is a simpler yet effective representation of the comprehensiveness of the BM concept (it includes only three dimensions, i.e. value proposition, value creation and delivery, and value capture). Secondly, this book aligns with the position of Zott and Amit (2013) who argued that using all-inclusive definitions of the BM concept makes it 'very difficult to see what the business model is not and how it differs from the firm or the organization (or other levels of analysis) at large' (p. 405). Figure 3.1 synthesises the process leading to the conceptualisation of the CBM.

This section now looks at the implications for the BM components deriving from the application of the CE principles. To begin with, CBMs challenge the nature of the *value proposition* (what is the customers' offering?) in the sense that its main component is a service rather than a product (Sempels 2013). In addition, they offer significant advantages to end customers (EMF and McKinsey 2012; Lacy and Rutqvist 2015). Lacy and Rutqvist (2015) counsel that customers interested in the ecological performances of companies' operations will be attracted by CBMs value propositions and that they will find products in CBMs as the same

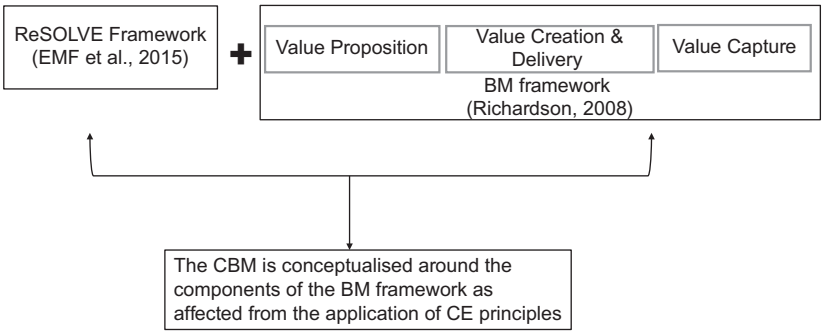

Fig. 3.1 The process to conceptualise the CBM

or better than those in linear BMs in terms of quality, price and performances. 'They will see how trading ownership of products for access to them can translate into greater convenience, little concern over maintenance and repair, less clutter in their homes, and more money in their pockets' (ibid., p. 25). They also add that it is in product use and after use that most of the customers' value is created and, therefore, with circular strategies, it is possible to tap into these stages of a product life cycle creating additional value for the customers.

On a similar line, EMF and McKinsey (2012) argue that in a CE consumers benefit from (a) products that are designed for durability; (b) increased transactional options as products could be leased, rented, shared; and (c) products secondary benefits, e.g. packaging that can be used as a fertiliser. For instance, one way in which consumers' benefits from circular strategies is the existence of recovery and recycling opportunities (e.g. send-back schemes; drop-off points) through which they can get rid of unwanted products (Lacy and Rutqvist 2015). *Ricoh*, the managed documents service provider, enables customers to send back used toner cartridges for free and has collection and treatment points where replaced components are managed for reuse and materials recovery (ibid.). *Marks & Spencer*, a leading UK's retailer, collaborates with Oxfam, a not-for-profit organisation, to facilitate recycling of used *Marks & Spencer*'s clothes, shoes and bags. These items can be brought into Oxfam stores where customers receive a voucher than can be spent in *Marks & Spencer*'s stores. The collected items are either resold or recycled and the money raised is donated to Oxfam in support of its work (ibid.). *Miele* designs washing machines lasting longer (about 20 years) than the average life span of a washing machine (10 years). Products are also designed for upgradability (Bocken et al. 2016). *Splosh* sells very innovative household cleaning products. It initially provides customers with a 'one-off starter box' which contains a range of bottles, each filled with a sachet of concentrated liquid that can be used to prepare detergents at home. Bottles can be used over time which contributes to reduce packaging waste, and new sachets when needed are ordered and delivered by post with the convenience of the customers (EMF 2017a). *Pley,* a start-up based in California, enables parents to rent and return LEGO sets for their kids on a subscription basis (Fitzpatrick 2015). Hence, from the theoretical themes and corporate examples illustrating the features of the value proposition in CBMs, the first proposition towards the conceptualisation of the CBM can be inferred:

P_1 *in CBMs value propositions are characterised by enhanced customers' value as a result of more comprehensive 'circular offerings' (e.g. products as services; greater convenience; dematerialised products; superior product durability and ecological performances; product upgradability; take-back schemes) and 'circular relationships' (access over ownership, e.g. leasing, renting, sharing).*

The adaptation of existent resources or development of new resources and capabilities appear to be crucial for *value creation and delivery* (how value for customers is created and delivered?) (Lacy and Rutqvist 2015). This can involve: (a) the establishment and effective management of complex and collaborative relational structures with suppliers and customers among others to understand where and how value can be created; (b) sourcing and innovative design capabilities to ensure that primary materials used in the manufacturing process are fully recoverable, biodegradable and recyclable at the end of products useful life; (c) constant customers' engagement along the entire product life cycle to provide them with services and to enable product recovery at end of life; and (d) reverse logistics capabilities to enable the flow of products from downstream (consumers) back upstream (manufacturer) (ibid.). All of these capabilities emphasise the relevance of the extension of the traditional relational structures that characterise BMs for emerging CBMs. In addition, the value creation system of CBMs is more likely to be characterised by local/regional supply chains (De Angelis et al. 2017), because of the greater opportunities for closing material loops offered by reduced geographic barriers (WEF et al. 2014), and by the maximisation of resources value. Notably, four 'circles' that enhance material productivity are identified in CE literature, offering opportunities for a better competitive advantage versus linear models. These are: (i) *the power of the inner circle*—the less a product has to change in order to be reused, the greater the savings; (ii) *the power of circling longer*—the advantage from maximising the times a product can be reused, rather than made new from virgin materials; (iii) *the power of cascaded use*—the gain from continued recycling across the value chain; and (iv) *the power of pure inputs*—uncontaminated materials within a product make them easier to reuse, and so extends resource longevity (EMF and McKinsey 2012).

Braiform is one of the largest supplier of garment hangers in the world. Retailers collect the hangers and send them to distribution centres where these are sorted, packaged and distributed to garment manufactures for a new cycle of use. Crucial in the development of this BMs has

been the set-up of reverse supply chains (EMF 2017a). *Ananas Anam* has developed an innovative, natural and non-woven textile, made from the fibres of the pineapple leaves called Piñatex™. This textile can replace leather which is becoming scarcer and costlier, and finds application in fashion, furniture, car and aerospace industry (Ananas Anam 2017). Multiple forms of value also would seem to characterise CBMs value creation and delivery mechanisms, i.e. value for broader categories of stakeholders including the natural environment, communities and employees is provided (Lacy and Rutqvist 2015). In this respect, CBMs are attuned not only to mainstream BM literature that emphasises economic value creation only (Chesbrough and Rosenbloom 2002; Schaltegger et al. 2016) but also to the sustainable BMs literature that emphasises the importance of the simultaneous creation of environmental and social value too (Boons and Lüdeke-Freund 2013; Evans et al. 2017; Roome and Louche 2016; Stubbs and Cocklin 2008). The growing number of *Repair Café* worldwide, for instance, enables communities to reduce their environmental burden by offering them the opportunity to repair items (e.g. small domestic appliances) that otherwise are disposed because no one can fix them (*The Guardian* 2017). *Rubies in the Rubble* collects fruits and vegetables from supermarkets which would be otherwise discarded because of aesthetic reasons and surplus due to overestimated demand, and convert them into chutneys which are now sold across several supermarkets within the UK (Rubies in the Rubble 2017). This commercial initiative aligned with CE thinking contribute to mitigate negative environmental impacts in the food supply chain which are significant, with about 10 million tonnes of annual food waste produced in the UK only, 60% of which could be avoidable (WRAP 2017b). Another example is also pertinent in the context of significant amount of plastic becoming marine litter causing devastating impact on the marine ecosystem and biodiversity (Ten Brink et al. 2016). In relation to this, *Method*, teamed up with volunteers to collect plastic waste from the Hawaii's beaches. Working with a recycling organisation, *Envision Plastics*, it created bottles made with the collected plastics to be used for its cleaning products (Method 2017). Hence, the second proposition is as follows:

P_2 *in CBMs value creation and delivery is characterised by diffused value creation, maximisation of resources value across the activity system, local/regional supply chains and boundary spanning relational competences for the adaptation or development of 'circular' resources and capabilities.*

In relation to *value capture* (costs and revenues streams), CBMs can be characterised not only by a shift in the source of revenues (from sale to product use/access) but also by reduced costs from the recovery of materials that otherwise may be difficult and expensive to source because of price and resource supply volatility (EMF and McKinsey 2012; Lacy and Rutqvist 2015). Additional revenues streams from (a) selling by-products that are useful to enter cycles of production of third parties, (b) services offered to customers over the entire product life cycle and (c) turning waste into inputs for new products lines, are also likely (ibid.). *Caterpillar*, the manufacturer of machinery for the construction industry, produces heavy machinery that is suitable for remanufacturing, repairing and upgrade and incentivises customers to return used parts. This enables customers to obtain a discount on remanufactured components and *Caterpillar* to lower its costs while retaining control over products that are reaching the end of their useful life (Lacy and Rutqvist 2015). *General Motors* recycles 90% of its manufacturing waste and it generates $1 billion in revenue annually from by-product recycling and reuse (ibid.). The start-up *Toast Ale* makes beer from surplus bread that would be otherwise wasted (EMF 2017a). Surplus bread is collected from bakeries, etc., and it is incorporated into the brewing process replacing about one-third of the malted barley that goes in the production of beer. This is not only a sound environmental and social business practice but it also makes business sense, as 'there's a good markup from grain to bread to beer' (EMF 2017a, p. 1). Companies embracing circular principles in their BMs will experiment a diverse impact on their costs and revenues structures because of the characteristics of their own offerings and activity systems. Hence, the third proposition is the following:

P_3 *CBMs are characterised by idiosyncratic value capture mechanisms.*

The three propositions made, as the basis for a more distinct conceptualisation of a CBM are summarised in Table 3.5.

This preliminary definition of the CBM is based on secondary data derived from publicly available examples. Future studies could use primary data and test the validity of the conceptualisation presented here in empirical settings. The following sections provide some guidance on which sectors/companies to choose in future studies on CBMs. In relation to the selection of industries/sectors, EMF and McKinsey (2012) consider 'medium lived' products (e.g. washing machines, mobile phones, light commercial vehicles) as the 'sweet-spot segment for

Table 3.5 Features of CBMs and conceptualisation

BMs components	*Qualifying features of BMs components in a CE*
Value proposition (Customers' offering)	$\mathbf{P_1}$: Enhanced customers' value as a result of more comprehensive 'circular offerings' (e.g. products as services; greater convenience; dematerialised products; superior product durability and ecological performances; product upgradability; take-back schemes) and 'circular relationships' (access over ownership, e.g. leasing, renting, sharing)
Value creation and delivery (How value is created and delivered)	$\mathbf{P_2}$: Diffused value creation, maximisation of resources value across the activity system, local/regional supply chains and boundary spanning relational competences for the adaptation or development of 'circular' resources and capabilities
Value capture (Costs and revenues)	$\mathbf{P_3}$: Idiosyncratic value capture mechanisms
Circular business models are business models wherein enhanced customers' value is produced as a result of more comprehensive 'circular offerings' (e.g. products as services; greater convenience; dematerialised products; superior product durability and ecological performances; product upgradability; take-back schemes) and 'circular relationships' (access over ownership, e.g. leasing, renting, sharing). In circular business models diffused forms of value are created, local/regional supply chains are implemented, maximisation of resources value across the activity system is pursued, boundaries spanning relational competences for the adaptation or development of 'circular' resources and capabilities are developed, and idiosyncratic value capture mechanisms are observed	

circularity' (p. 36). This is the case because they are made of different components and thus they offer the greatest opportunities for the application of CE principles (e.g. they are suitable for refurbishment and disassembly) (ibid.). Yet, the environmental impact of consumables (products with a shorter lifespan like textiles) could also be mitigated via the application of CE principles as EMF and McKinsey have rightly emphasised in a subsequent publication (i.e. EMF and McKinsey 2013). Major impacts are due to energy use, use of toxic chemicals, water and soil pollution in the case of textiles manufacturing (Allwood et al. 2006). Mitigation would be achieved if (a) their composition moves towards renewable materials that can be safely returned to nature at the end of their useful life with a restorative purpose and (b) different cycles of reuse are pursued

(e.g. used textiles can be recycled as filling for upholstery furniture) (EMF and McKinsey 2012). Therefore, selecting also textiles and clothing case studies is appropriate to show how the industry is mitigating its environmental impacts and whether it is taking into account the changing regulatory landscape within the EU, for example. Notably, the European Clothing Action Plan (ECAP), adopted in 2015, seeks to diminish the significant amount of waste resulting in clothing supply chains across Europe and to reduce by 90,000 tonnes clothing waste sent to landfill and incineration by 2019 (ECAP 2016). In line with the EU's plan, the EMF in cooperation with the textile industry stakeholders, is currently involved in the *Circular Fibres Initiative* to identify what a circular global textile system could look like in addition to the steps necessary to move it away from the predominant linear operating model (EMF 2017b). In terms of the size of the business, it would be pertinent to focus on SMEs for academic and practical reasons. Notably, there is little understanding of innovation that addresses ecological and social concerns within SMEs to date (Halme and Korpela 2014) and SMEs account for 99% of EU's businesses and for more than half of the EU's GDP (EC 2013).

With regard to the research method, exploratory, multiple, qualitative case studies showing how CE principles are implemented in the business context would seem appropriate. Business and Natural Environment studies are characterised by the predominance of quantitative methods and, at the same time, by the quest for more qualitative approaches to gain a better comprehension of the phenomenon under investigation (Hoffman and Bansal 2012). CE implementation and CBMs are investigated only marginally within academic literature (Jurgilevich et al. 2016; Lewandowski 2016; Lieder and Rashid 2016; Murray et al. 2015; Witjes and Lozano 2016). Therefore, the case study approach which is suitable when 'a how or why question is being asked about a contemporary set of events over which a researcher has little or no control' (Yin 2014, p. 14), is suited to CBMs studies. Within the domain of qualitative enquiries, looser and structured research designs are both appropriate (Miles and Huberman 1994). In the former case, the conceptualisation of the CBM can be constructed more inductively and emerges from the empirical context. In the case of a more structured research design, some conceptual frameworks can be introduced earlier in the research process and are used to guide the data collection and analysis. This book has employed the ReSOLVE framework (EMF et al. 2015) and Richardson's (2008) BM framework to conceptualise the CBM. However, as Table 3.4 shows

there are additional constructs in the academic and practitioner literature that could be used to develop the CBM conceptualisation and alternative BMs framework are also available (e.g. the BM canvas by Osterwalder and Pigneur 2010). Cases would be selected employing a purposive rather than random logic, which accords with the nature of qualitative enquiries (Miles and Huberman 1994). This means that they are chosen because considered relevant to the research design (Guest et al. 2006). Reputational case selection (LeCompte et al. 1993, p. 76) can be applied, meaning that the cases are selected because recommended by an expert in the area. Comparable case selection (LeCompte et al. 1993, p. 78) could be applied too to favour comparability across cases.

3.5 Summary

This chapter has reviewed the BMs and CBMs literature before outlining a set of propositions conducive to a preliminary conceptualisation of the CBM. This is one of the most relevant elements of novelty that this book brings to the emerging CE literature. Notably, although the CE term has become fairly widespread in use, there is a need for more clarity and convergence within the CE terminology. This book contributes to conceptual clarity by defining the CBM which, to the best of this author's knowledge, is almost inexistent from the literature wherein it is possible to identify mostly CBMs archetypes, categories, elements, framework, canvases and strategies. This is useful not only to facilitate theory building and thus as a reference point from which future studies could develop but also to clarify the concept of the CBM to management practitioners. BM innovation is a crucial constituent of the transition towards a CE and, therefore, it is important that a clear and consistent message on its key meaning is given to the business community so that scaling it up is quicker. In this respect, not only is that the articulation of the CBM provides conceptual clarity but also that it is built around 'value', and, therefore, it is attuned to the language of the business community whose engagement the CE framework seeks to achieve, and builds on scholars' recommendations on how best attract the interest of the business community. Walter Stahel, the founder of the *Product-Life Institute* in Geneva and the author of the *Performance Economy* which, as seen, is considered as one of the originators of the CE thinking, once commented: 'I have never been a fan of what's known as the 'zero waste movement', because in the western world, 'zero' is not

really a motivating goal. A better way is turning it around so instead of talking about zero waste in a factory, you talk about 100% yield. Your shareholders expect you to turn one tonne of materials into one tonne of products that you can sell, so talk about the concept of 100% yield to any western managers and they will immediately see the challenge' (Edie Newsroom 2017, p. 1). This chapter has also given some suggestions for future research wishing to investigate the topic of CBMs. Particularly, it has emphasised which industries and companies could yield more significant results and, therefore, contributing to additional academic and practical relevance. In the next chapter, further insights into the literature on CBMs are added, particularly in relation to their theoretical foundations.

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CHAPTER 4

Circular Business Models: Some Theoretical Insights

Abstract This chapter starts laying the theoretical foundations of business model innovation in the context of the circular economy. Particularly, it deals with how the rationale for adopting circular business models can be explained drawing from the strategic management and neo-institutional theory literature. This chapter also discusses (a) the potential through which circular business models advance the theoretical framework, and (b) the extent to which the implications of circular business models are source of tensions for the theoretical framework used. It also identifies opportunities for future research.

Keywords Natural-resource-based-view · Neo-institutional theory Circular economy field

4.1 Introduction

The previous chapter proposed a preliminary conceptualisation of the CBM, and this chapter builds on this by laying the theoretical foundations of BM innovation in the context of the CE. This is a pertinent area of enquiry. Notably, recent studies highlight that in the CE literature, 'there is no existing unified theory or conceptual approach on how circular economy can be implemented' (Fischer and Pascucci 2017, p. 5) and that 'there is little theoretical development' (Murray et al. 2015, p. 9). Blomsma and Brennan (2017) state that the 'theoretical or paradigmatic

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clarity regarding the circular economy concept has yet to emerge' (p. 8). Fischer and Pascucci (2017) lament that 'the identification of relevant strategic processes and actors in this domain is still limited' (p. 5). Consequently, this research offers some theoretical guidance by exploring the rationale for adopting innovative CBMs or transforming existing ones. This is done by focussing on the following question: how can the rationale for adopting circular business models be explained? The integrated theoretical framework put forward to answer to this question combines the natural-resource-based-view of the firm (Hart 1995) and the neo-institutional theory (Di Maggio and Powell 1983) from the strategic management and institutional theory literature respectively. Resource-based and institutional logics are among the most common theoretical approaches applied in the Business and Natural Environment research (Linnenluecke and Griffiths 2013; Hahn et al. 2015; Montiel and Delgado-Ceballos 2014) and enquiries based on well-known theoretical lenses are useful to identify gaps and opportunities for research avenues (Bertels and Bowen 2015). Here, we see how this theoretical framework can provide useful insights into the development of the CE literature.

This chapter is structured in the following way. Section 4.2 synthesises the state of the art of the issue of theory in the BMs and CBMs literature. It also explains why resource and institutional lenses are used in this study. Sections 4.3 and 4.4 are focussed on the natural-resource-based-view of the firm and the neo-institutional theory with discussion of (a) the potential through which CBMs advance the theoretical framework, and (b) the extent to which the implications of CBMs are source of tensions for the theoretical framework used. Section 4.5 describes emerging CE institutional developments with an application to the British context, and therefore, responds to recent calls for enquiries over socio-institutional mechanisms leading to the transition towards the CE and related BM innovation. Notably, Moreau et al. (2017) underline that institutional and social aspects are mostly overlooked in relation to closing material loops and implementation of new BMs, and Fischer and Pascucci (2017) that 'institutional analysis so far has not focused on CE' (p. 5). Concurrently, Hobson and Lynch (2016) lament that scant consideration has been given to the broader societal implications of the transition towards a CE. They ask: 'what form (…) could and should circular socio-economic institutions, norms and shared practices take and what processes, values and actors will get us there?' (p. 16). On a similar

line, the EMF's 'priority research agenda' over aspects of the CE that are not fully understood yet but that are crucial to facilitate implementation, asks: 'for a country or region, what are the rules, the cookbook, to support the adoption of circular practices'? (EMF 2016, p. 4). The last Sect. 4.6 summarises this chapter's contribution in addition to identifying opportunities for future research.

4.2 The Theoretical Foundations of Circular Business Models

Despite scholars' surge of interest in the concept, the BM literature is still in its early days (Zott and Amit 2013) and there appears to be little understanding of the theoretical foundations of the BM (Arend 2013; Demil et al. 2015; Lecocq et al. 2010; Schneider and Spieth 2013; Sommer 2012; Teece 2010; Wirtz et al. 2016; Zott and Amit 2013; Zott et al. 2011). Arend (2013) lamented that 'the term business model as a description of how a traditional venture operates is strong on redundancy and weak on theoretical grounding' (p. 390). Analogously, Teece (2010) argued that 'the concept of the business model lacks theoretical grounding in economics or in business studies' (p. 175) and Zott et al. (2011) that 'the business model remains a theoretically underdeveloped (…) concept' (p. 1038). Concurrently, Schneider and Spieth (2013) maintained that the 'literature on business models (…) emerged without spending much attention to the issue of theory' (p. 15) and Lecocq et al. (2010) that 'the theorization stage [within business model research] is only in its infancy' (p. 221).

What about the theorisation stage in the CBMs literature? Chapter 3 has found that although limited, some evidence of CBMs elements/categories (Aldersgate Group 2015; Circle Economy 2016; EMF and McKinsey 2012; Gorissen et al. 2016; Van Renswoude et al. 2015; Lacy and Rutqvist 2015; Lovins et al. 1999; Norden 2015; Sempels 2013; Stahel 2006; Weetman 2017; WRAP 2017a), strategies (Bocken et al. 2016), canvas (EMF and IDEO 2017; Lewandowski 2016), archetypes (Moreno et al. 2016), frameworks (Antikainen and Valkokari 2016) and case-based examples (Antikainen and Valkokari 2016; Gorissen et al. 2016; Goyal et al. 2016; Linder and Williander 2015; Ruggieri et al. 2016) is emerging across practitioner, academic and grey literature. Yet, there is limited theoretical development in the CE literature as evidenced

in this chapter introductory section. Seemingly, the BMs and CBMs literature are interlinked in terms of their not fully explored theoretical dimension with the current state of the art of theory in CBMs mirroring that of the broader BMs literature.

This chapter uses organisational (the natural-resource-based-view of the firm) and institutional (neo-institutional theory) lenses to answer to the following question: how can the rationale for adopting circular business models be explained? Resource-based theories are compatible with the logic underlying BMs (Schneider and Spieth 2013), in so far as the value proposition as well as value creation and delivery are dependent upon strategic companies' resources and capabilities (Amit and Zott 2001; Osterwalder and Pigneur 2010). The BM perspective also extends understanding of the means through which value is created and captured (Demil et al. 2015) because it is a combination of resources and capabilities that support activities enabling value creation and value capture, rather than resources individually considered. Therefore, the use of resource-based perspectives in the BMs literature (e.g. Amit and Zott 2001) is not surprising. Equally, in the context of CBMs, the development of new resources and capabilities or the transformation of existing ones is likely given the implications for value proposition, creation and delivery resulting from implementation of the CE proposition as discussed in Chapter 3.

What is fairly new to the BM literature is attention to the context within which BMs develop (Randles and Laasch 2016; Wells 2013) despite the fact that (a) anchoring the study of the BM to the institutional level is welcomed to advance understanding of the conditions under which BMs develop (Demil et al. 2015), and (b) the structure within which a BM operates is a determinant of whether it flourishes or fails (Wells 2013). The conceptual framework used in this study is thus compatible with the quest to advance both the Business and Natural Environment and BMs literature by combining different theories and levels of analysis (Amit and Zott 2001; Bertels and Bowen 2015; Hoffman and Bansal 2012). It is also pertinent in the context of research explaining corporate processes/strategies. Businesses are required to be not only competitive in the market but also to respond to societal expectations and therefore institutional and strategic/competitive logics are not conflicting lens in explaining corporate outcomes (Di Maggio 1988; Oliver 1997; Scott 1987). Resource and institution-based perspectives offer complementary views on the rationale for adopting CBMs

with their focus on companies' resources and broader societal influences, respectively, as levers for organisational processes and performances (Barney 1991; Di Maggio and Powell 1983; Oliver 1991). In addition, the use of the neo-institutional theory addresses concerns in the context of CE research where there would seem to be a limited consideration of institutional theories (Fischer and Pascucci 2017). The next paragraph relates to the first theory of the conceptual framework used in this study, the natural-resource-based-view of the firm.

4.3 The Natural-Resource-Based-View of the Firm

Within the strategic management literature, resource-based perspectives investigate the sources of a company's competitive advantage and how to sustain it over time (Barney 1991). Assuming resource heterogeneity, firms that are endowed with resources and capabilities that are valuable, rare, difficult to imitate or substitute, can obtain a competitive advantage and sustain it over the long term according to the resource-based-view of the firm (ibid.). Valuable resources are those that allow either, exploiting an external opportunity drawing upon internal strengths, or neutralising internal weaknesses and threats coming from the company macro environment (ibid.). Rare resources are considered as firm specific, thus coming from a combination of factors that are peculiar to a given company (ibid.). Inimitable resources are those that cannot be easily replicated by competitors (ibid.). Barney counsels that resources are inimitable because they can be tacit, casually ambiguous or socially complex. Tacit resources are those based on skills and experience accumulated through hands-on practice. They are invisible to the outside, thus difficult to imitate. Casual ambiguity can make resources inimitable because in this case, it is not clear to external competitors how company resources are linked to its competitive advantage. Socially complex resources derive from the interaction between the different components of an organisation engaged in actions for the attainment of corporate objectives. Such resources are once again inimitable because a competitor might find it difficult to understand how such interaction takes place and the many forms through which a company might organise itself to exploit opportunities and strengths while neutralising weaknesses and threats. Non-substitutable resources are those that cannot be replaced with substitutes by competitors.

Hart (1995) criticised Barney's model since it neglects a natural resource-constrained world and thus the implications for firms' competitiveness. Consequently, he proposed the natural-resource-based-view (NRBV hereafter) of the firm arguing that firms' capabilities in environmentally sustainable practices are inextricably linked to the achievement of a sustained competitive advantage. In this model, three capabilities were identified as crucial to attain and sustain competitive advantage: pollution prevention, product stewardship and sustainable development. *Pollution prevention*, which focuses on the manufacturing stage of a product life cycle, can lead to reduced costs because of enhanced resources productivity, reduced waste and lower compliance costs (Hart 1995). Meanwhile, *product stewardship* seeks to minimise environmental pollution along the entire product life cycle (ibid.). Through life cycle assessment and design for the environment, a better appraisal of the product ecological impact is achieved and new green product development stimulated (ibid.). In this case, the source of competitive advantage is not reduced costs but, according to Hart (1995), 'competitive pre-emption' (p. 994), which equals to gaining access to scarce resources or setting new industry standards. Finally, pursuing *sustainable development* means to address both environmental and social concerns at the same time, which implies going beyond minimising pollution and producing affordable products for those in the less developed parts of the world (ibid.). Competitive advantage, in this case, is built through innovation and new market spaces (ibid.).

Clearly, the main tenet of the NRBV, twenty years after, is still and even more relevant in the light of the current ecological crisis. Hart's model is also useful in explaining the rationale for adopting CBMs since the present state of the ecosystem has many direct and indirect implications for the management of organisations and their long-term survival. Not only is the case that natural capital is declining (WWF 2016), global affluence is increasing (Lacy and Rutqvist 2015) and hence resource price and supply volatility affect the viability of linear operating BMs (EMF 2015), but also that climate change and waste regulations and society expectations for corporations to take the lead in addressing the problems that they helped to create, are increasing (EMF 2015; Haigh and Hoffman 2014). Consequently, BM innovation for a CE could contribute towards the achievement of a sustained competitive advantage in the form of better reputation, increased customers' loyalty, potential additional revenues, reduced materials costs and supply volatility

and mitigation of regulatory risks: what has been termed as 'circular advantage' (Lacy and Rutqvist 2015).

The NRBV of the firm is one of the most relevant spin-offs of the resource-based-view of the firm (Barney et al. 2011) and has attracted a considerable interest in the literature (Amores Salvadó et al. 2012), which has been well documented (see, for instance, Hart and Dowell 2011; Montiel and Delgado-Ceballos 2014). Yet, fifteen years after its first conceptualisation, Hart and Dowell (2011) argued that there was 'a need for research that continues to evaluate and extend the propositions offered by Hart (1995)' (p. 1475). Capabilities in CBMs innovation could represent an opportunity to extend Hart's propositions for several reasons.

Firstly, the changing competitive arena that businesses are now confronting provides opportunities for them to build a circular competitive advantage. Secondly, BM innovation to address ecological and social challenges seems either not to be fully explored in Hart's model and subsequent studies or only implicitly considered. For instance, in this relevant passage is argued: 'sustainable economies and sustainable corporations (…) cannot be based on continuing growth in the consumption of non-renewable energy and virgin raw materials. Nor can they create hazardous waste and polluting emissions. Environmental sustainability requires the complete redesign of organizations and strategies' (Shrivastava and Hart 1995, p. 157). From this statement, it can be inferred that 'the complete redesign of organizations' would involve BMs as well, but BMs are not mentioned explicitly. A change in BMs is considered implicitly by Hart and Milstein (1999). They identify 'sustainability' as a new source of creative destruction in the business context, and argue that 'in the long run, however, the dynamics of creative destruction will work against firms that rely only on incremental improvements and fail to change the fundamental manner in which they provide products, processes, and services' (p. 24). By contrast, more direct acknowledgement of BM innovation is given in the author's studies (Hart 2010, 2012; Hart and Milstein 1999) that deal with business strategies at 'the bottom of the pyramid' where traditional BMs conceived for the wealthiest consumers are not likely to work, and fundamental redesign of BMs to provide products and services that are affordable is necessary. Thirdly, the CE thinking aims to reintegrate the economic system within the ecological one (EMF et al. 2015). Therefore, not only are CBMs in accord with the logic underlying the

NRBV of the firm but they also respond to Hart and Dowell's (2011) call upon management practitioners and academic communities for more attention to solutions that address ecological and social challenges rather than simply minimising harm and thus to move beyond incremental strategies (e.g. pollution prevention, product stewardship and eco-efficiency).

The cooperative approach that the mechanisms of value creation in CBMs is likely to require (Webster 2013) is also an opportunity to further emphasise the validity of the arguments posed by Hart (1995). The aspect of competition over collaboration is central in resource-based theories (Haigh and Hoffman 2014; Starik and Kanashiro 2013). However, Hart (1995) rightly recognised that firms' survival resides not only in competitiveness but also in social legitimacy opening up the way to the relevance of cooperation in the pursuit of legitimacy. Cooperation within the activity system of CBMs appears to be crucial as evidenced in Chapter 3 and so it reinforces Hart's argument. In addition, the more boundary spanning relational structure qualifying the process of value creation within CBMs, could also provide the basis for rejecting some of the criticism that the NRBV of the firm in its original conceptualisation has attracted, i.e. that it has 'a tendency to deal with firms in an atomistic way' (Lifset and Boons 2012, p. 9). However, while the BMs literature concurs with resource-based perspectives in postulating that as the resources and capabilities underlying the BM become more valuable, rare, difficult to imitate and substitute, the potential for economic value creation increases (Amit and Zott 2001), the centrality of resource control, uniqueness, casual ambiguity and social complexity in pursuing competitive advantage becomes more nuanced if circular strategies are implemented. This would be in line with Dyer and Singh's (1998) relational view assuming that the sources of competitive advantage may reside beyond a single organisation boundaries. Hence, although the NRBV offers a relevant theoretical perspective to explain the rationale for adopting CBMs and the latter could expand Hart's model and strengthen some of its assumptions, there are also potential contrasts deriving from the interplay between the two. The next paragraph gives attention to the second element of this book conceptual framework, namely to the neo-institutional theory. A diversion in the meaning of institutions and in the processes through which they can affect corporate actions is accomplished first.

4.4 Institutions and the Neo-Institutional Theory

Institutions, according to the Nobel Prize-winning economist, Douglass North, are 'the rules of the game in a society or, more formally, (…) the humanly devised constraints that shape human interaction' (North 1990, p. 3). From this standpoint, the role of institutions is to establish the constraints within which choices can be made, reducing uncertainty and the transaction costs faced by individuals satisfying their personal needs. In contrast, the social constructivist approach has contended that individuals' preferences and choices are shaped and influenced by society (Vatn 2005). Under this approach, 'individuals interact to form institutions, while individual purposes or preferences also are molded by socio-economic conditions. The individual is both a producer and a product of her circumstances' (Hodgson 1998, p. 177). Most sociologists have shared this perspective (ibid.). For instance, the sociologist Scott (1995) classified institutions as 'cognitive, normative, and regulative structures and activities that provide stability and meaning to social behavior' (p. 33). Regulative institutions take the form of regulations (ibid.); the normative level contains an evaluative dimension (Scott 2008), which means it takes the form of values and norms reflecting what is generally perceived as an appropriate conduct (Doh et al. 2010); the cognitive level represents the 'shared conceptions that constitute the nature of social reality and the frames through which meaning is made' (Scott 2008, p. 57).

The organisational studies literature also has given attention to institutions, with the neo-institutional theory (Di Maggio and Powell 1983; Meyer and Rowan 1977; Oliver 1991). Di Maggio and Powell (1983) argued that organisational action is mediated and shaped by the institutional context, particularly by the 'organisational field' (organisations are shaped by other organisations in the field) through the influences of coercive, normative and mimetic forces. Accordingly, coercive influences arise mostly from regulatory bodies (state agencies); normative pressures define the suitable organisational and professional conduct and stem from organisations like universities, and professional training networks; mimetic forces are significant under conditions of uncertainty with organisations imitating the successful strategies implemented by others. Scott (1995) contributed to define an organisational field such as 'a community of organizations that partakes of a common meaning system and whose participants interact more frequently and fatefully with one

another than with actors outside the field' (p. 56). In his view, the field incorporates any actor exerting regulatory, normative or cognitive influences upon organisations. Overall, these pressures lead to organisational 'homogeneity in structure, culture and output' (Di Maggio and Powell 1983, p. 147) and 'the concept that best captures the process of homogenization is isomorphism' (p. 149). Fields materialise around common products, markets or technologies according to the predominant view of how fields form but Hoffman (1999) also proposed that fields form 'around the issues that become important to the interests and objectives of a specific collective of organizations' (p. 352). Conformity to institutional pressures increases legitimacy and social support and thus it benefits companies' ability to secure resources, ultimately having relevance for the attainment of a competitive advantage (Di Maggio and Powell 1983; Oliver 1991).

However, within neo-institutional theory, the institutional entrepreneurship perspective (Oliver 1991) has also introduced agency, i.e. the possibility for organisations to respond to institutional pressures in different ways and not only through conformity (Boxenbaum and Jonsson 2008). While the meso perspective in the neo-institutional theory explains diffusion, meaning that it explains how organisational forms and practices are replicated within organisational fields with an emphasis on homogeneity and convergence, the institutional entrepreneurship approach accounts for heterogeneity and variation, namely divergent organisational change (D'Aunno et al. 2000; Hasse and Krücken 2008). The latter approach has brought more dynamism in the study of institutional contexts as agency and rational decision-making combine with institutional pressures to explain corporate actions (Hasse and Krücken 2008). The neo-institutional theory has received widespread application in corporate sustainability studies (for a review, see: Delmas and Toffel 2012; Montiel and Delgado-Ceballos 2014) providing understanding of how broader institutional influences shape corporate environmental action (Hahn et al. 2015; Lounsbury et al. 2012).

As conformity to organisational fields leads to legitimacy and social approval, and consequently has relevance in the attainment of a competitive advantage, the neo-institutional theory is an appropriate theoretical perspective to understand the rationale for adopting CBMs. Arguably, in seeking legitimacy and opportunities for improving competitive advantage organisations might choose to conform their BMs strategies to the influences coming from the 'fields' established around the 'issue'

of the CE. A high level of interaction and engagement around a common debate by a group of organisations denotes the existence of a field structure (Di Maggio 1983). Consequently, while it is by far too early to observe a highly structured organisational field around the 'issue' of the CE, there are nevertheless some societal developments that might be conducive to it as Chapter 2 has indicated. The CE thinking has started gaining visibility only recently due to the activities and initiatives promoted by the EMF. The foundation in partnership with the *World Economic Forum, McKinsey & Company, SUN* and *SYSTEMIQ*, has produced several reports outlining the economic rationale of the transition towards a CE and stimulated discussion among businesses, policymakers and higher education institutions with the 'mission to facilitate the transition towards the CE'. It is also involved in some initiatives like *The New Plastics Economy* and *The Circular Fibres Initiative* to identify what a circular global textile and plastics system could look like in addition to the steps necessary to move them away from the predominant linear operating model. Other organisations have also promulgated and explored the CE. For example, within the UK, WRAP, Green Alliance, Waste Companies, the Aldersgate Group, Innovate UK and the Royal Society for the Encouragement of Arts, Manufacture and Commerce. Regulatory changes are under way as result, for instance, of the *EU's Circular Economy Action Plan* and circular principles are currently embraced by business leaders and policymakers worldwide as outlined in Chapter 2.

In addition to providing a basis for the explanation of the rationale for adopting CBMs, the neo-institutional theory could benefit from its application in the context of the research on CBMs. Starik and Kanashiro (2013) highlighted that the neo-institutional theory views the natural environment only as a source of shocks and pressures enacting organisational change but it fails to acknowledge that organisations are embedded within the ecosystem, which is rather seen as separate from the organisational domain. On a similar line, Hoffman and Jennings (2015) argued that the 'interests of the natural environment (and future generations) are not captured within standard institutional analyses, which are social and present by definition' (p. 20). The implementation of the CE thinking and thus of BMs modelled upon the functioning of living systems would have implications for 'fields' composition. Notably, the natural environment would be considered as the locus of influence upon firms' strategies not solely in terms of sources of shocks as per the neo-institutional theory but, more radically, as a 'model' to learn from. This would be in line with

perspectives in stakeholders' theory acknowledging that nature should be given the status of stakeholder and thus being directly considered as affecting or being affected by corporate actions (Driscoll and Starik 2004; Starik 1995; Waddock 2011). Starik (1995) counselled: 'rather than overly-restricting the number of natural environment stakeholders, the continued human-caused environmental deterioration of the planet appears to call for all organizations to consider as stakeholders as many natural environment entities as possible (…). Adding non-human natural environment stakeholders could make an organization's stakeholders' map more nearly complete for total environmental problem identification, analysis, evaluation and resolution' (p. 212).

As a consequence, the field constitution would evolve towards the direction welcomed by Starik and Kanashiro (2013) and more recently by Hoffman and Jennings (2015). This shift is not without implications though and reinforces the paradoxical stances existing within institutional theories. The environment would not enter the field by itself. Embracing nature as a 'model' to learn from requires a change in the institutionalised views of the environment in regulations, norms and beliefs, i.e. a profound 'de-institutionalisation' process that is to say that 'any process of institutionalisation must involve a corresponding process of de-institutionalisation' (Randles and Laasch 2016, p. 60). In the institutional developments surrounding the CE that have been highlighted above, two constructs of institutional theory can be observed. Firstly, the EMF and pioneer business leaders can be considered institutional entrepreneurs, i.e. 'actors who have an interest in particular institutional arrangements and who leverage resources to create new institutions or to transform existing ones' (Maguire et al. 2004, p. 657) as a consequence of the changing ecological, technological, regulatory and socio-economic contexts. Secondly, the emerging regulatory, normative and mimetic influences centred on the CE can lead to organisational and institutional isomorphism once more deeply established at the societal level. Therefore, the simultaneous occurrence of entrepreneurship and potentially of isomorphism around the CE underlines the paradoxical nature of the stances coexisting within institutional theories, i.e. the focus on change and conformity respectively (Gilmore and Sillince 2014).

As seen, in neo-institutional theory, 'fields' are of a central relevance to understand the process leading to organisational conformity and thus to legitimacy. Yet, we need to consider what does a 'CE field' look like exactly?

To begin to answer this question, the next section outlines an emerging 'CE organisational field' with a particular application to the British context.

4.5 The UK's Circular Economy Field

A description of some emerging developments in the British CE field emanating from the government (regulative) and professional training institutions at both the industry and education level (normative) is presented here with the exclusion of cognitive institutions whose presence is generally very problematic to measure (Hoffman 1999). It is only very recently that the CE thinking has been gaining attention (mostly from 2010) and it is therefore difficult to ascertain whether it is becoming an integral part of the cultural frames guiding perception of the reality and action.

In terms of regulatory institutions, the British Government has acknowledged the desirability of a CE and has attributed to market mechanisms (resource prices) the lever for changes in consumers' and producers' behaviour (Joint written evidence to the Environmental Audit Committee 2014). The transition to a CE is seen as almost entirely down to the business initiative while Government role ranges from setting up the right policy framework for businesses to work within, to the removal of barriers that prevent businesses from taking circular actions and the promotion of innovation (ibid.). In what follows, some of these Government's interventions are highlighted and they include not only legislative and financial instruments (e.g. taxes) but also support measures, public procurement rules and initiatives managed by Government's agencies. The initiatives described are both UK wide and regional because environmental policy is decentralised in the UK (DEFRA 2015).

Starting with legislative and financial instruments, the Waste Hierarchy, which informs waste policy and regulation within the EU (Gregson et al. 2015) and encourages giving priority to waste prevention which is then followed by reusing, recycling, energy recovery and as last option landfill disposal (ibid.), governs waste policy and it has been converted into law with the Waste Regulations 2011 (England and Wales) (DEFRA 2011). A landfill tax also is charged in the UK since 1996 and in 1999, a landfill tax escalator was introduced which established that the standard rate of landfill tax would have increased each year (Seely 2009). This tax has represented a clear incentive to encourage the recovery of waste materials (DEFRA 2015) and has reduced waste sent

to landfill which since 1996, when the tax was introduced, has halved (Joint written evidence to the Environmental Audit Committee 2014). The producer responsibility principle, which seeks to make businesses responsible for materials at the end of their life, also applies to different sectors (ibid.). For instance, Packaging Regulations establish that packaging must be designed so that it is recyclable, recoverable and compostable at the end of its useful life (ibid.).

Initiatives that seek to remove barriers and promote innovation include the UK Government Resource Security Action Plan (2012). This funded closed-loop initiatives in the local economy through the support of the Technology Strategy Board, and also launched the Circular Economy Task Force, an industry-led group gathered by the Green Alliance with the purpose to suggest policy recommendations on the issue of resource scarcity (DEFRA 2012). The UK Government also recognised the importance of the CE for the national manufacturing industry with its 2013 Future of Manufacturing Report, and with measures to encourage more responsible and efficient use of resources within the 2013 Waste Prevention Programme for England. The latter launched the Innovation in Waste Prevention Fund which supports projects for waste prevention in local communities through the Waste and Resources Action Programme (DEFRA 2013). In 2012, the UK Government also started supporting the Product Sustainability Forum, which brings together academics, NGOs, UK Government representatives and grocery retailers/suppliers, to improve the environmental credentials of grocery products (WRAP 2017b).

Innovation for the CE is also supported by the UK Government through Innovate UK and WRAP (Waste and Resource Action Plan). For example, Innovate UK launched (Spring 2015) a funding competition for investments up to £800k in studies exploring the business case of innovative BMs based on remanufacturing, leasing and reuse and under its previous name as Technology Strategy Board has financed the Supply Chain Innovation towards the Circular Economy project (Innovate UK 2015). The Technology Strategy Board also financed the Great Recovery Project (Joint written evidence to the Environmental Audit Committee 2014). Led by the Royal Society for the Encouragement of Arts, Manufactures and Commerce, the project has created a network of professionals (e.g. manufacturers, materials expert, design experts, policymakers and academic among others) to explore how to design products that accord with the principles of the CE and

has identified four design typologies, namely design for longevity, design for service, design for reuse in manufacture and design for material recovery (RSA 2013). Several initiatives have also seen the involvement of WRAP, a not-for-profit organisation which works to promote resource efficiency across the UK. Among these: (a) the *Courtald Commitment* aimed at reducing food waste in manufacturing, retail and households through a voluntary agreement with the retail industry (WRAP 2017c); (b) the *Love Food Hate Waste* campaign aimed at individuals, communities and organisations to reduce food waste (ibid.); (c) WRAP in 2012 started a collaboration with the Hospitality and Food Service sector aimed at reducing members food and packaging waste by 5% by the end of 2015 (ibid.); (d) the Electrical and Electronic Equipment Sustainable Action Plan (ESAP) and the Sustainable Clothing Action Plan (SCAP) aimed at improving, respectively, the environmental sustainability of electric and electronic products and clothing along their life cycles, by identifying actions including how to extend product durability, improve reuse and recycling and influence consumer behaviour (WRAP 2017d; WRAP 2017e); (e) the development of a BMs map featuring innovations that accord with the principles of the CE to be used as a tool for businesses that want to innovate their BMs (WRAP 2017a); (f) the support and coordination of the Plastics Industry Recycling Plan (PIRAP) launched in June 2015. PIRAP is a network of industry associations representing the plastic packaging supply chain that works to identify which actions need to be developed to guarantee that the industry meets the UK plastic packaging recycling targets, which are due to increase from 32% of 2012 to 57% by 2017 (WRAP 2017f); (g) WRAP is leading on the REBus project (coming to an end in December 2017) concerned with the development of resource efficient BMs which assists SMEs and large organisations in the implementation of these BMs with a focus on textiles, electric, electrical, furniture and construction goods (DEFRA 2015).

Additional initiatives that seek to encourage business initiatives come from other UK's regions and include the following: (a) Zero Waste Scotland (ZWS) assists in the implementation of the Scottish Zero Waste Plan, resource efficiency and low carbon policies (ZWS 2015); (b) the Scottish Materials Brokerage Service works to ensure that the supply and demand of high value recycled materials is matched (DEFRA 2015); (c) the Welsh Eco-design Centre works in partnership with companies, designers and industry associations to support design for the CE and

(d) the Prosperity Agreements set by the Northern Ireland Environment Agency support businesses towards more resource and energy-efficient innovations (DEFRA 2015).

In terms of public procurement, revision of buying standards at the government level has been initiated in 2014 with new rules contemplating reuse of furniture, purchase of refurbished or easy to reuse items, which can act as lever for the development of more CBMs within the business community along with a 'swap shop' facilitating reusing and exchange of items across departments (DEFRA 2014).

Nonetheless, further government intervention to facilitate the transition to a CE was requested by the House of Commons Environmental Audit Committee in 2014. Notably, the Committee encouraged among others the following measures: (a) differential value-added tax and tax allowances for products that are in line with the CE principles; (b) standardisation of waste collections and a ban on disposal of food waste to landfill; (c) standards for eco-design (House of Commons, Environmental Audit Committee 2014).

Normative institutions also populate the British CE organisational fields in the form of professional training organisations from the industry and the higher education that are gathering around the CE. At the industry level, professional networks include the CE 100, the Sustainable Business Model Group and the Resource Event. The CE 100 is a forum that was launched by the EMF in 2013. Leading global companies, governments, higher education institutions and SMEs innovating in products, services and BMs, are part of the CE 100 and they collaborate and network for the development of practices based on CE principles (EMF 2017a). Similar to the CE 100 is the Sustainable Business Model Group launched by the Forum for the Future. The Resource Event is the British most prominent event for businesses interested in the CE and resource efficiency, gathering annually businesses across sectors with opportunities to share best practices and to learn more about BMs for a CE (Resource 2015). In addition, as evidenced in Chapter 2, the British Standards Institute has very recently released the first global standard offering practical guidance to organisations of any size and type wishing to implement CE principles (BSI 2017).

At the higher education level, British universities work in collaboration with the EMF and they are classified as follows: (a) pioneer universities (University of Bradford, Cranfield University and University College of London) which contribute with teaching and

research to advance understanding of the CE; (b) network universities (Loughborough University, Northumbria University, University of Edinburgh, University of Sheffield, University of Strathclyde, University of Exeter and University of the Arts London) which contribute to knowledge exchanges and collaborations with policymakers and businesses and (c) partner universities (Imperial College London, London Business School and Cranfield University), which are collaborating in the Schmidt-MacArthur Fellowship, seeking to develop skills for a CE in design, engineering and business (EMF 2017b; EMF 2017c). Among the initiatives taken by these universities, the University of Bradford launched the world first Circular Economy MBA, distance learning executive education and a postgraduate certificate in the CE, and Cranfield University a Master in Technology, Innovation and Management for the CE. In addition to its collaboration with higher education institution, the EMF provides online teaching and learning resources to support education for a CE in schools and colleges and e-learning resources for business leaders in managerial and executive roles (EMF 2017d).

The description of the CE organisational field does not intend to be an exhaustive representation of all the institutional developments around the CE that are emerging within the British context. At this point in time, with the UK negotiating an exit from the European Union, there is some institutional and policy uncertainty, that impacts on the evolution of the CE organisational field. Notably, if the country remains within the European Economic Area (EEA), the majority of European environmental laws (including the Waste Hierarchy and the CE package) will continue to apply. However, if the UK moves outside the EEA, then there could be greater change, though exporters will still need to comply with EU regulations in case of trading with other EU states (IEEP 2016).

4.6 Summary

In this chapter, the theoretical dimension of CBMs have been explored, in order to provide a rationale for why CBMs might be adopted. It has offered an integrated conceptual framework which combines the natural-resource-based-view of the firm (Hart 1995) and the neo-institutional theory (Di Maggio and Powell 1983). The approach taken in this study is consistent with the quest to advance the Business and Natural Environment and BMs literature by combining different theories and levels of analysis (Amit and Zott 2001; Bertels and Bowen 2015;

Hoffman and Bansal 2012). It is also coherent with anchoring the study of the BM to the institutional level, to advance understanding of the conditions under which BMs develop (Demil et al. 2015), given that the structure within which a BM operates is a determinant of whether it flourishes or fails (Wells 2013). This responds to the call for more attention to be given to institutional theories in the context of CE research (Fischer and Pascucci 2017).

Opportunities for the perspectives underlying CBMs and the conceptual framework used in this study to cross-fertilise each other alongside potential sources of conflicts and limitations deriving from integrating them are also emphasised. While these considerations are useful to underline the academic relevance of this research, there are also important implications for the practitioner community. Notably, the arguments from competitive and legitimacy logics emphasise the necessity of the transition from linear BMs to CBMs for the attainment of a sustainable and sustained competitive advantage. An outline of an emergent CE field in the British context has also been presented in line with the quest for research over socio-institutional mechanisms leading to the transition towards the CE and related BM innovation (EMF 2016; Hobson and Lynch 2016; Moreau et al. 2017).

Organisational theories and their instrumental logic have been used to part answer to this chapter's initial question: how can the rationale for adopting CBMs be explained? However, this work begs the need for further research. For example, the micro foundations of corporate decision-making could be complementarily explored from a normative perspective. This would involve considering the influence of management values, mental frames and sense-making process, aspects which are currently overlooked within the Business and Natural Environment literature (Basu and Palazzo 2008; Christensen et al. 2014; Hahn and Lülfs 2014; Zollo et al. 2013) and would contribute to overcome the 'much lamented micro-macro chasm in the field of management' (Aguinis and Glavas 2012, p. 594). Future studies might also reveal the mechanisms leading to a sustained competitive advantage from CBM innovation and shed some light on the relevant underlying resources and capabilities. Questions remain over the implications resulting from applying strategic management lenses to CBMs. Particularly, to what extent is down to firms' competition and to what extent is to firms' cooperation for such CBMs to succeed? Answering this is likely to require contributions from scholars in both the Business and Natural Environment and Strategic

Management fields in finding answers. This would have important implications for practitioners since essential lessons might be learnt from the experience of other business leaders that have experimented with CBM innovation.

Furthermore, future studies might assess organisational and institutional isomorphism within a particular institutional context and compare different CE organisational fields and their underlying regulatory, normative and mimetic influences (e.g. across European countries) to evaluate which institutional arrangements are more effective in soliciting the transition towards a more resource-efficient CE. Although sociocultural conditions or cognitive structures in the analysis of the British CE field have not been considered here, this is an opportunity for further institutional research. They have relevance in motivating individual and organisational action (Starik and Rands 1995), with cognitive, institutional and economic processes tightly linked such that: 'cognitive and institutional path dependence will ultimately lead to economic path dependence' (Mantzavinos et al. 2004, p. 81). There are also developing grassroots social innovations that might be investigated, as well as consumers' attitudes. British consumers would seem to now consider both the purchase of second-hand goods, and alternatives to the ownership of goods such as sharing and leasing. (Eurobarometer 2014). The Transition Town movement, a UK-based international network seeks to promote sustainable living at the community level, also promotes some initiatives aligned with CE thinking, such as car share schemes and clothing swopping/repairing (IPPR 2013). Therefore, these emergent cultural developments are an interesting avenue for future CE research to explore and to investigate whether over time they become more embedded in the British institutional context and thereby contribute to the emergence of CBMs.

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CHAPTER 5

Concluding Remarks

Abstract This chapter is a final reflection which also highlights the specific contribution that this enquiry brings to the academic literature, its limitations and implications for practitioners wishing to implement circular economy-driven business model innovation.

Keywords Research contribution · Research limitations
Research implications

5.1 Research Contribution

This work brings some specific contribution to the literature at the intersection between the CE and BMs from a Management Studies perspective and this is significant given the limited contribution to the CE that has come from business disciplines to date (Moreno et al. 2016), particularly in the academic literature.

To begin with, this book offers a preliminary, more systematic conceptualisation of the CBM, which to the best of this author's knowledge, is almost inexistent in the relevant literature. Therefore, the proposed conceptualisation can be considered as a stepping stone towards both theory building at the intersection between the CE and BMs, and conceptual clarity in CE-related literature where divergence and confusion on the terminology in use exist. This conceptualisation has been built by bridging academic and practitioner literature on the CE that to date have rather developed in

R. De Angelis, *Business Models in the Circular Economy*,
https://doi.org/10.1007/978-3-319-75127-6_5

silos with limited cross-fertilisation. Recommendations for future studies wishing to further develop the conceptualisation of the CBM presented in this book have also been provided in relation to the research method, size of companies and industry/sectors to investigate. Forthcoming research could also investigate organisations that have attempted to implement CBMs but have not succeeded. Studies of this type might help to identify organisational, market and policy barriers that have hindered the exercise of corporate agency and from which lessons can be drawn from policy and practical perspectives. Calls for increasing the practical relevance of Management Studies and overcoming the rigour versus relevance 'tribes' within the field have been expressed (Gulati 2007; Reed 2009). By contributing to academic clarity and practical relevance simultaneously, this book also addresses crucial concerns in the Management discipline. In addition, Management literature has given considerable more attention to constructs like resources, capabilities and competitive advantage than to BMs, despite their relevance for business leaders (Baden-Fuller and Morgan 2010). Therefore, conceptualising CBMs around 'value' and linking them to opportunities to improve competitive advantage complements the prevailing perspectives in the Management literature.

This book also contributes to the theoretical dimension of CBMs currently mostly neglected within the CE literature. It has done so by explaining the rationale for adopting CBMs using theories in the strategic management (natural-resource-based-view of the firm) and institutional (neo-institutional theory) literature. In addition, it reflects on how the conceptual framework could be advanced as a consequence of extending it in the realm of CBMs and the extent to which the implications of CBMs are source of tensions for the theoretical framework used. Recommendations to further elaborate the theoretical dimension of CBMs have been also offered in relation to both alternative theories, and institutional contexts within which to assess the influence of regulative, normative and mimetic pressures in favouring the transition towards the CE.

5.2 Implications for Practitioners and Research Limitations

BM innovation is a key building block in the transition towards the CE. Therefore, it is important to provide some direction about what a CBM is in the first place. In this respect, it is hoped that the conceptualisation

of the CBM offered here clarifies the nature and the scope of CBMs cutting across the divergent constructs populating the CE literature. It is also hoped that this conceptualisation provides some guidance for business leaders in making sense of an emerging model that holds huge potentials for the future prosperity of our market-based economy and of corporations within this. The conceptualisation of the CBM is recalled here from Chapter 3: *Circular business models are business models wherein enhanced customers' value is produced as a result of more comprehensive 'circular offerings' (e.g. products as services; greater convenience; dematerialised products; superior product durability and ecological performances; product upgradability; take-back schemes) and 'circular relationships' (access over ownership, e.g. leasing, renting, sharing). In circular business models, diffused forms of value are created, local/regional supply chains are implemented, maximisation of resources value across the activity system is pursued, boundaries spanning relational competences for the adaptation or development of 'circular' resources and capabilities are developed, and idiosyncratic value capture mechanisms are observed.*

BM innovation is attracting the interest of the business community with the changing competitive arena that business leaders are now confronting demanding a shift in the ways through which value is created and captured. If creation and appropriation of value is the language of business, constructing the conceptualisation of the CBM around the theme of value, i.e. value proposition, value creation and delivery, and value capture, is appropriate to catalyse the attention of business leaders. However, there are some practical implications that management practitioners have to deal with once they have mastered the sense of CBMs, which are correlated to the 'level of circularity' they wish to pursue. Will minor, moderate or major levels of circularity be pursued? Each of these strategic orientations will result in varying degrees of impact for value creation, delivery and capture. What does the pursuit of circular offering mean for current and prospective value propositions? How far should managers go in stretching their relational capabilities? What level of restructuring will be required in the supply chain? Which circular strategy or combination of circular strategies are to be followed to maximise resource value in the activity system? For instance, which measure or how many measures in the ReSOLVE (Regenerate, Share, Optimise, Loop, Virtualise, Exchange) framework (EMF et al. 2015) will be implemented? How can untapped sources of revenues be spotted?

CE-driven BM innovation will inevitably confront managers with potential challenges. To begin with, it is open to question which organisational structures are most suited to succeed in the implementation of CBMs. For instance, are SMEs more likely to attain successful outcome compared to larger firms? Some studies suggest SMEs have a fairly limited familiarity and comprehension of environmental issues (Tilley 1999) and they do not get involved with actions that do not relate directly to their survival (Hunt and Auster 1990). However, it is also noted that SMEs are suited to pursue radical innovation (Klewitz and Hansen 2014) because of their enhanced flexibility (Etzion 2007), and they can engage not only with reactive but also with environmentally proactive strategies (Aragón-Correa et al. 2008) and are involved in the implementation of BM innovation for the attainment of broader environmental and social goals (Clinton and Whisnant 2014). Secondly, driving and enacting a major turn in corporate strategies such as in the case of BM innovation is time demanding. Therefore, in the case of large organisations, potential sources of temporal tensions could arise given the time orientation of 'quarterly capitalism' (Barton 2011, p. 86), wherein companies set their objectives and evaluate their performances in the very short term. This aspect has implication for academic research also where the conflicts deriving from managing organisations in accordance with broader corporate objectives are mostly framed in terms of financial versus environmental/social goals, with the temporal aspect almost neglected (Hahn et al. 2015; Slawinski and Bansal 2015). Thirdly, and once more in relation to large organisations, can organisational 'loose coupling', i.e. high degree of institutional separation (Weick 1976, p. 1), be a source of hindrance in the process of BM innovation? If so, how can this be moderated? Crossing internal boundaries to enable value creation and capture would become relevant and consequently, internal, boundary-spanning relational capabilities would need to be developed alongside external and network-oriented ones. Fourthly, given the existence of some fundamental barriers to the development of CBMs, e.g. the lack of EU-wide standards concerning secondary raw materials quality especially for plastics (EC 2015), could corporate agency suffice to overcome these barriers? What could this mean for BM innovation? Is, for instance, the set-up and control of own materials supply chains necessary to guarantee quality and thus reliable and consistent sources of secondary raw materials?

Alongside its suggested contributions, there are also some limitations in this enquiry that future studies could address. As emphasised

throughout this book, this enquiry offers a preliminary conceptualisation of the CBM. CE thinking is an emerging concept and so it is not yet in widespread use though gaining increasing attention worldwide. Therefore, this book does not give a definite answer in relation to how CBMs look like and can be conceptualised. Nonetheless, it offers some guidance from which future studies may depart to complement this research. This book has also focussed solely on the corporations in a CE and it has not considered the wider, system-level implications of the CE model. Moving to a CE requires more than just business involvement. It can be assimilated to sociotechnical transitions defined as 'a combination of technical, organizational, economic, institutional, social-cultural and political changes' (Van den Bergh et al. 2011, p. 2) and these are complex, developing over the long term and involving many players (Geels 2011). Shrivastava (1995) makes a pertinent point when he argues that 'companies are only one of the many wheels of sustainability' (p. 937). Thus, BM innovation can be considered as one of the 'many wheels' of the sociotechnical transition towards a CE. Consequently, this is a further area of enquiry that other scholars in other disciplines (e.g. product design, policy, energy and materials innovation) and not exclusively in Management Studies can contribute to.

5.3 A Final Reflection

What follows is a reflection infused of a personal note, which further clarifies this book perspective on how to approach environmental problems.

This author research interest was born while preparing the research proposal for my doctoral degree. At that point in time, I was introduced to 'Mission Zero', the transformational corporate sustainability programme initiated by Ray Anderson, the founder of Interface Carpet. Renowned for having set the ambitious aim of becoming the first company to have zero negative impact upon the natural environment, Interface's story inspired pretty much the rest of this author's academic training providing motivation for researching on innovative business practices that address environmental and societal challenges. Inspiration comes from positive narratives and can be powerful. Positive narratives can be more effective than the 'doom and gloom' rhetoric to catalyse action for an economy that is in harmony with the natural world. Therefore, this book, fuelled by the original inspiration that this author has personally experienced and leveraging on the thoughts expressed

by other scholars, has sought to engage the reader in a positive outlook about the future prosperity of humanity on planet Earth.

The positive narrative that circular principles are putting forward with regard to the relationship between economy and ecology, focuses on reintegration of the economy within ecology (EMF et al. 2015), which is in itself inspiring. In addition, it is complemented by an empowering attitude towards corporations since the radical transformation of current linear-operating BMs is a crucial constituent of the CE. By contrast, 'doom and gloom' approaches either lack proposals, or these are unachievable or unrealistic. The CE thinking and its related initiatives are emerging. However, in the light of its empowering attitude, positive narrative and of the reasons discussed in the previous sections of this book, it gives hopes in believing that 'business as unusual' wherein the 'bottom line' interest is achieved while ecological and social concerns are not simply minimised but significantly overcome, is possible within a market-based economy.

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Index