

## RESEARCH ARTICLE

# Circular economy business models as progressive business models: Evidence from circular start-ups

Roberta De Angelis 

Cardiff Business School, Cardiff, UK

## Correspondence

Roberta De Angelis, Cardiff Business School,  
Aberconway Building, Colum Drive, CF10 3EU  
Cardiff, UK.

Email: [deangelisr@cardiff.ac.uk](mailto:deangelisr@cardiff.ac.uk)

## Funding information

The author wishes to acknowledge research funding provided by the British Academy of Management (BAM) and Società Italiana Management (SIMA) Collaborative Research Award, Reference Number: 2021-303-BAM-SIMA.

## Abstract

The transition towards the circular economy—viewed as a holistic solution to meet the sustainable development goals—requires the crucial engagement of the corporate sector, and thereby, radically new business models. Whilst academic literature abounds of tools classifying and categorising circular business models, comparatively little is known in terms of how exactly they look like in the corporate context. Drawing on case studies of small, British circular start-ups, this article illustrates the characteristics of circular business models and their fit with progressive business models, which are conceptualised as serving *nature, future generations, and society, while maintaining financial profitability*. This article also highlights how circular business models contribute to competitive advantage and the distinctive challenges met in implementation. As a result, this research contributes to the scant academic literature exploring circular business models implementation, particularly within the context of start-ups and SMEs.

## KEYWORDS

circular business models, circular economy, progressive business models, SMEs, start-ups

## 1 | INTRODUCTION

We have entered a new geological epoch, the Anthropocene, wherein as humans we have become the dominant force on planet Earth (Crutzen & Stoermer, 2000; Steffen, 2021). Human behaviour is causing serious environmental harm, and the consequences of this turn are self-evident in the ecological crisis we are witnessing. The 2021 Intergovernmental Panel on Climate Change Working Group Report 1 has been defined as ‘code red for humanity’ (UN, 2023, p. 1) highlighting, more than ever before, the need to no longer delay climate-related interventions. Climate change is just one of the triple

planetary crisis under way together with pollution and biodiversity loss (UNFCCC, 2023).

Much of environmental degradation has its source in our economic activities, and so, we need to find new ways for our economy to work in line with planetary boundaries (Becker, 2023). As put by Shrivastava and Zsolnai (2020), ‘without making a sustainability case for business, there is little hope for survival on our rapidly deteriorating Earth’ (p. 14). The Anthropocene challenges the philosophical, epistemological and ontological bases underpinning the natural and social sciences, and thereby, disrupts how the relationship between man and nature is viewed in theory and practice (Baskin, 2015). Within this context, the way of doing business is not exempt from this disruption: ‘the Anthropocene era represents a clear disjuncture and discontinuity from the past and business needs to find a new realignment to achieve a sustainable world. That realignment requires

**Abbreviations:** CBMs, circular business models; CE, circular economy; CEOs, chief executive officers; PBMs, progressive business models; SMEs, small and medium-sized enterprises.

This is an open access article under the terms of the [Creative Commons Attribution](https://creativecommons.org/licenses/by/4.0/) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2024 The Author(s). Business Strategy and The Environment published by ERP Environment and John Wiley & Sons Ltd.

a drastic modification of business-nature relations' (Shrivastava & Zsolnai, 2020, p. 1). What is needed to redefine the business-nature relations is radically new business models, referred to as progressive business models (PBMs) (Shrivastava & Zsolnai, 2020). O'Higgins and Zsolnai (2017) posit that progressive business 'is understood as ecologically sustainable, future respecting, and pro-social enterprise' (p. 12) whilst retaining financial sustainability.

The subject of alternative business models to cope with current and complex societal grand challenges is discussed in the well-established and burgeoning literature on sustainable business models (e.g., Lüdeke-Freund, 2020; Roome & Louche, 2016; Schaltegger et al., 2016) referred to as business models based on an expanded value creation logic, and thereby, creating value for a broader set of stakeholders (Pinkse et al., 2023; Velter et al., 2020). Within this field, a flourishing research stream is that on circular business models (CBMs), that is, business models based on circular economy (CE) principles. Why this is the case is not surprising considering that the CE has attracted a great deal of attention across different quarters as a 'promising idea and ideal that has much to bring towards addressing challenges of the Anthropocene' (Calisto Friant et al., 2020, p. 1). Yet whilst the CBMs literature abounds with conceptual tools (Kanda et al., 2021), less is said about how these business models look like in a practical context (Pietrulla & Frankenberger, 2022; Rocca et al., 2023). Additionally, whilst CBMs and PBMs are underlined by a common call for redefining the business and natural environment relationship, what is the exact relationship between the two is not yet explored. Hence, this article asks: *Can circular business models be qualified as progressive business models?* To answer this question, this article draws on four case studies of small, circular start-ups from the British business context. The contribution of this study is original for several reasons. First, to the best of this author's knowledge, studies exploring the relationship between CBMs and PBMs are inexistent. Drawing on the broader business and society literature by anchoring CBMs with PBMs, this research enhances the conceptual and theoretical groundings of CE thinking and CBMs. Second, start-ups and SMEs have received comparatively less attention than large organisations in the literature exploring CE implementation (Gennari, 2022; Suchek et al., 2022; Van Opstal & Borms, 2023). Third, the cases in this study bring some elements of novelty to the literature since some of them operate in the 'biological cycle' of the CE and in the B2B context whereas the CBMs literature abounds with studies focussing on the 'technical cycle' and the B2C context (Kanda et al., 2021; Reim et al., 2021). Finally, this article casts some light on the challenges related to CBMs implementation and the competitive advantage implications resulting from CBMs implementation.

The remainder of this article is organised as it follows. Section 2 introduces the concept of PBMs from the business and society literature and delves into the CBMs literature. Subsequently, Section 3 illustrates the research method. Then Section 4 presents the empirical cases and matches the characteristics of the investigated CBMs against the features of PBMs. Next, Section 5 highlights the research findings. Finally, Section 6 summarises this research contribution and points to future areas of investigation.

## 2 | CIRCULAR BUSINESS MODELS AND PROGRESSIVE BUSINESS MODELS

What the CE thinking and narrative have managed to achieve in a relatively short amount of time is synthesised effectively by Leipold et al. (2023): 'few other sustainability-related concepts have been able to spark the imagination, enthusiasm, and commitment of academics, businesses, NGOs, and governments worldwide as the CE' (p. 6). Emerged with the pioneering work of the Ellen MacArthur Foundation in partnership with McKinsey & Company in 2012, CE thinking and principles are now increasingly embraced at the policy level and by businesses across the globe. As a viable solution to address some of the most pressing societal grand challenges, boost competitiveness and enhance the resilience and environmental sustainability of our production and consumption systems (Lacy & Rutqvist, 2015; Manzhynski & Figge, 2020; Schroeder et al., 2019), it is not difficult to understand why the CE has gained traction across different stakeholders.

Academically, the interest in the CE has grown substantially: the number of CE publication rose by 4255% between 2015 and 2021 (Dominko et al., 2022), and the CE is now an established research field (Kirchherr et al., 2023). Within the CE literature, scholars have also explored CBMs, mirroring the increasing attention towards innovative business models based on CE principles within the business community. As put by the World Economic Forum 'by as soon as 2030, if your business model isn't circular, you won't be competitive ... [and] to remain competitive from 2030 ... leaders must adopt circular business models, launch pilots and build a strategy for transitioning to the next economy – the circular economy' (WEF, 2023, p. 1). However, most of current CBMs literature is still conceptual (Kanda et al., 2021) whilst empirical studies concerning implementation are just emerging (Heras-Saizarbitoria et al., 2023; Rizos et al., 2016; Stumpf et al., 2021).

In the business and society literature, radically new business models, characterised by a fundamental rethinking of the relationship between business and the natural environment, and thereby, aligned with CE thinking, are referred to as PBMs (Shrivastava & Zsolnai, 2020). PBMs are 'ecology-oriented, respect the needs of future generations, and produce values for society at large, not just for shareholders or selected stakeholders' (O'Higgins & Zsolnai, 2017, p. 12). PBMs may vary in their construction but they share some common characteristics that delineate their progressivity and particularly: *exponential* (a radical departure from business as usual); *sustainable/circular/frugal* (financially but also ecologically sustainable, by embracing, for example, circular principles); *embracing paradox* (espousing apparently conflicting goals); *integration* (embracing systems thinking to balance economic, environmental and social sustainability goals); *socially oriented* (strive for more than profit, i.e., having a positive social impact); *stakeholder oriented* (adopting a collaborative approach based on *fairness, interdependency, relationships, dialogue, and trust* with a network of stakeholders), and *committed leadership* (be led by progressive, visionary and future-oriented leaders) (O'Higgins & Zsolnai, 2017). In a nutshell, 'the essence of

progressive business is to serve nature, future generations, and society while maintaining its financial profitability and health' (p. 13). Furthermore, PBMs are underlined by the fundamental belief that businesses can be a force for good, contributing to the flourishing of life on Earth (O'Higgins & Zsolnai, 2017).

Given the relevance of the concept of progressive business and the prominence of CE thinking within the context of doing business in the Anthropocene, as well as their common call for redefining the business and the natural environment relationship, it is highly pertinent to investigate the exact relationship existing between CBMs and PBMs. To the best of this author's knowledge, no other studies have explored whether CBMs can be qualified as PBMs. To address this article research question and to advance the CBMs literature, this article draws on four case studies of British SMEs and start-ups. Whilst SMEs account for 99% of all European business and are well placed to support the transition towards the CE (OECD, 2023), they are less investigated in the literature on CE implementation than large organisations (Gennari, 2022). The same can be said of start-ups. In fact, even though they are considered a suitable organisational form for implementing CE strategies (Van Opstal & Borms, 2023), empirical studies centred on circular start-ups are limited (Henry et al., 2020).

### 3 | RESEARCH METHOD

This research is based on multiple, qualitative case studies (Siggelkow, 2007). This choice is pertinent since the nature of this research is exploratory and contemporary (Blaikie, 2000; Yin, 2014). Furthermore, case studies allow to capture complex organisational and managerial implications in a business context (Ghuri & Gronhaug, 2005). Case studies are also frequently employed as a research method in the CE literature across different academic journals. Particularly, this paper draws on four case studies of small, British circular start-ups.

To guide the cases selection in terms of fit with CE principles, the ReSOLVE framework (EMF et al., 2015) has been used, in line with other studies exploring CE implementation within the business context (e.g., Ding et al., 2023; Tedesco et al., 2022). ReSOLVE is an acronym that results from combining the initials of six CBMs strategies: *Regenerate*, *Share*, *Optimise*, *Loop*, *Virtualise* and *Exchange* (EMF et al., 2015). In other words, they can be seen as a means of implementing the CE principles synthetised as *Eliminate*, *Circulate* and *Regenerate* (EMF, 2015). *Regenerate* is focussed on renewable energies and materials; *Share* places emphasis on the strategies for extending resource use (e.g., sharing, reusing); *Optimise* is an efficiency-driven strategy in products and processes; *Loop* is probably the most known CE strategy since as 'circular' implies it comes as natural to think about products that circulate in technical and biological cycles; *Virtualise* is about minimising materials use by delivering utility virtually; and *Exchange* focusses on replacing old and non-renewable materials with more advanced ones (EMF, 2015).

To identify cases relevant to this research, purposive and theoretical sampling have been used (Eisenhardt & Graebner, 2007;

TABLE 1 Cases overview.

Cases	Relation with the CE	Time of study	Research topic	Industry	Country	Number of employees	Source of information	Interviewee's position	Type, number and length of interview
Case A	<i>Circulate</i> and <i>Eliminate</i> . <i>Regenerate</i> and <i>Loop</i> in the ReSOLVE framework.	October 2022– March 2023	CBMs as PBMs	Food waste-based technology developer	UK	8 people	Website, interviews	Co-founder and chief marketing officer	On-line (Zoom); 2 interviews: 59 min in total.
Case B	<i>Circulate</i> and <i>Eliminate</i> . <i>Share</i> and <i>Loop</i> in the ReSOLVE framework.	October 2022– January 2023	CBMs as PBMs	Accessories	UK	4 people	Website, interviews, blogs, media coverage	Owner and director	On-line (Zoom); 2 interviews: 62 min in total.
Case C	<i>Circulate</i> and <i>Eliminate</i> . <i>Share</i> and <i>Loop</i> in the ReSOLVE framework.	October 2022	CBMs as PBMs	Fashion	UK	2 people	Website, interview	Co-founder and director	On-line (Zoom); 1 interview: 30 min in total.
Case D	<i>Circulate</i> and <i>Eliminate</i> . <i>Regenerate</i> and <i>Loop</i> in the ReSOLVE framework.	November 2022– February 2023	CBMs as PBMs	Bio-composite material for the construction industry	UK	6 people	Website, interviews and product factsheet	CEO and co-founder	On-line (Zoom); 2 interviews: 58 min in total.

Yin, 2014). Companies were selected through a desk-based review and their willingness to participate into the research. Particularly, micro, small and medium-sized enterprises (SMEs) as defined by the European Commission, that is, companies with less than 250 employees (EC, 2023), and start-ups were considered. Overall, four organisations were included in this study with all of them being circular start-ups and micro-sized businesses (up to 10 employees). Companies and key informants' identifiers have been removed to comply with the ethical protocol that applied to this research and to enhance the availability of unbiased participants' accounts (Berry, 2002). Table 1 is a snapshot concerning the companies investigated.

Data collection relied on multiple sources, and particularly, secondary data (webpages, blogs, products factsheets and media coverage) and primary data collected through semi-structured interviews with key informants (mostly CEOs and founders). In total, seven interviews were conducted online between October 2022 and March 2023. Interviews lasted 209 min in total, were digitally audio-recorded and professionally transcribed. Interviewees' questions were derived from the CE, CBMs and PBMs literature. The decision concerning how many interviews to conduct was guided by achievement of saturation, which occurs when no new information emerges from the field under investigation (Bryman, 2016). Appendix A includes the interview protocol. A contact summary sheet was also used to record key points and observations emerged from each interview. The development of the interview protocol along with case studies databases, rich cases descriptions and the adoption of triangulation support validity and reliability (Lindgreen, 2021; Yin, 2014).

As the aim of the research process was to preserve the integrity and the richness of data (Langley, 1999), narrative analysis was used to perform data analysis. The first step consisted of exploring and analysing secondary data. This was then followed by the analysis of the contact summary sheet. Next, interview transcripts were read thoroughly several times to highlight relevant content and develop a reliable understanding of the respondents' perspectives. The reported findings are the result of 'systematic combining' (Dubois & Gadde, 2002, p. 555) through which there has been a constant move between theory and data. The findings that are illustrated next result from the researcher's data analysis and interpretation. This means that they do not represent the position of the empirical cases and fall exclusively under the researcher's responsibility.

## 4 | CASES HIGHLIGHTS

### 4.1 | Case A: food waste-based technology developer

Case A is a start-up, and particularly, a research and development company that has gone through different stages in its circular journey. When it was set up, the company manufactured biodegradable and recyclable post use bio-plastics and bio-plastic composites

from agricultural waste. Agricultural waste was used to extract lactic acid which was then used for producing polymers, plastics and composites. Recently, the company has concentrated only on the development of the technology for the extraction of lactic acid from food waste, using potato peel as primary feedstock. Case A business model fits with 'Circulate' and 'Eliminate' principles and with 'Regenerate' and 'Loop' measures in the ReSOLVE framework (EMF et al., 2015).

### 4.2 | Case B: accessories

Case B is a start-up manufacturing breast prostheses aimed mostly at women who have had a mastectomy following a breast cancer treatment. Breast forms are made from 100% mouldable silicone and are more durable than standard breast prostheses. Silicone production off-cuts can be turned into other breast forms and the company has looked at different ways to turn off-cuts into other products too, for example, jewellery. Customers can return their breast forms when they are no longer needed. Returned breast forms are sterilised, fully cleansed and donated to women that cannot afford buying them. Breast forms are produced in batches based on customers' needs with the intention being that of not overproducing. The final product is packaged in reusable cotton bags to avoid plastics waste and it is lightweight and breathable, thereby contributing to enhanced well-being. The breast forms are also designed to remain in place when they are used within post-surgery underwear, and are compatible with an active lifestyle as they can be used for exercising and swimming, aiding accessibility. Case B business model fits with 'Circulate' and 'Eliminate' principles and with 'Loop' and 'Share' measures in the ReSOLVE framework (EMF et al., 2015).

### 4.3 | Case C: fashion

Case C is a start-up which seeks to disrupt the fashion industry operating model. The company operates on demand and manufactures garments (t-shirts, sweaters) in small batches, with production starting only when orders are received. Customers participate in the creation of their garments with their feedback and requests. This avoids fashion overproduction and stands in sharp contrast with the conventional fashion industry operating model, wherein for luxury brands, the burning of unsold inventory has become a strategy for preserving brand value (Lee Park et al., 2021). The company strives to use recovered, post-consumer and/or organic materials in the manufacturing of its garments. Garments are designed for durability, free guidance for keeping items in use for longer is shared with customers and products can be returned with the company covering shipping costs and offering a store credit. The company is also looking at the launch of a resale programme with each returned item being cleaned using environmentally friendly cleaning processes. Items that cannot enter the resale programme would be recycled by third parties. A proportion of its profits goes to regenerative projects across the

**TABLE 2** CBMs as PBMs: evidence from primary and secondary data.

Features of PBMs	Cases and sources
Exponential	<p><b>Case A</b> ‘Existing lactic acid is made from sugars or starches which are grown specifically for the production of that ingredient. So obviously that takes up a huge amount of land and obviously water and all sorts of carbon and resources to produce that crop which then goes into the production of lactic acid’ (Interview 1, p. 3). ‘As we move to the future where global population is increasing and the demand for food is higher than ever, especially with the cost-of-living crisis that we’re already going through, we believe it’s important to make sure that there is land and area available for the production of crops. That’s where ours is a lot more sustainable and a lot more friendly in that sense, that we can use a bioproduct or a waste [stream] to produce the same product that these verging crops are able to produce. So, we are not competing with land for food production’ (Interview 2, p. 1).</p> <p><b>Case B</b> ‘We offer a radically new designed breast prosthesis’ (Interview 1, p. 1). The breast forms are lightweight and breathable, thereby contributing to enhanced wellbeing; are also designed to remain in place when they are used within post-surgery underwear, and are compatible with an active lifestyle as they can be used for exercising swimming, aiding accessibility (Website).</p> <p><b>Case C</b> [Our value proposition] is ‘is to create a circular solution for fashion (...) using organic, renewable, recyclable materials, offering a demand lead model as opposed to kind of a supply lead model’ (Interview 1, p. 1).</p> <p><b>Case D</b> The company manufactures acoustic and thermal insulation sheets that are carbon negative (the product is 100% biomass, sequestering carbon that would otherwise be burnt through incineration; the mycelium networks used also capture carbon through its growth) from 100% renewable and bio-based materials sourced from industrial waste, diverting biomass from incineration (Website).</p>
Sustainable/circular/frugal	<p><b>Case A</b> ‘By syphoning a waste stream, we obviously have a much more sustainable primary resource and input into our process (...). I think waste is an outdated word (...). It’s either a by-product or a resource because obviously for us the potato peelings, the waste isn’t a waste. It’s a resource for us. It’s the starting point for us rather than ending’ (Interview 1, pp. 3–5).</p> <p><b>Case B</b> ‘We don’t overproduce, we batch produce (...). We make what we need, what we know we can sell (...). We do save all of our silicone waste’ (...). We’re very clear that if people don’t need it anymore, they’re to send it back to us (Interview 1, p. 2). Breast forms are made from 100% mouldable silicone and are more durable than standard breast prostheses (website). The final product is packaged in reusable cotton bags to avoid plastics waste (Interview 1).</p> <p><b>Case C</b> ‘We wanted to be dictated purely by demand and then that demand would then inform our product traces and then we release batches of garments that people could pre-order. So, at no point we’d hold any inventory. (...). Organic, renewable materials and then kind of a two-way supply chain (...) and wanted to take products back. And that also dictates design choices, so we don’t want to create garments that have blended materials that then can’t be reprocessed at end of life. We want to create garments that can come back to us and if they can’t be resold by our of kind of re-commercial scheme, that can then be recycled via a kind of a third party’ (Interview 1, pp. 1–2).</p> <p><b>Case D</b> ‘The first product that we are developing for commercial launch is a carbon negative insulation sheet made with biomass waste from the paper and pulp industry, bound together with mycelium roots. Mycelium is the root network of fungi and we use it as a binder’ (Interview 1, p. 1). The company production plant runs almost entirely on solar energy and it has a take back policy; This means that unused products from overordering can be returned within the returns period and end of life panels can be returned and it will be recycled into new panels (Website). ‘Our product sequester is 22kg of CO<sub>2</sub> per cubic metre (...) It utilises 40% less energy and 90% less water, while emitting 60% less CO<sub>2</sub> than EPS insulation, which is plastic insulation’ (Interview 1, p. 1).</p>
Embracing paradox	<p><b>Case A</b> ‘If we are making a decision (...) we’re challenging that decision to make sure that all the considerations have been made to ensure that that is the right decision that has the least amount of environmental impact. (...) We’re challenging every sort of, every process, every idea to make sure that it is sort of ticking the boxes or at least being as environmentally friendly as we can possibly be’ (Interview 1, p. 4).</p> <p><b>Case B</b> ‘The main thing was to look at something that functioned to meet the needs that my mum was suggesting was the market gap, but then from that, you don’t really want to be bringing new stuff into the world without having some understanding of what will happen to it in the longer term, so that’s where those considerations also came in’ (Interview 1, p. 1).</p> <p><b>Case C</b> ‘If we’re taking a very purist circular mindset which we do, we don’t want to be kind of encouraging consumption. We don’t want it to be seen as a company that’s pushing discounts (...). And so, I think to do that is a bit odd, to be a company that never has a sale or yes, it’s almost anti-growth kind of view and would kind of go against traditional kind of marketing I guess. Even the idea of taking pre-orders as opposed to holding stock, it really goes against kind of the profit motive (...). I think</p>

(Continues)

TABLE 2 (Continued)

Features of PBMs	Cases and sources
	<p>there is an impact on profit simply because we get less orders because there is a wait, we're asking our customers to wait 3 weeks to 4 weeks. So, they're then less inclined to place an order in the first place and therefore your profits are not going to be as high as your revenues are not going to be as high' (Interview 1, p. 3).</p> <p><b>Case D</b> 'For us, planet, people, and profit are all at the same level' (Interview 1, p. 3).</p>
Integration	<p><b>Case A</b> [Our core values] are 'collaboration, sustainability and innovation. They're the three things. Also, people and planet. It's about making sure that we can come into work every day and do our best work, drive innovation and obviously at the same time, try to make sure that we're as sustainable and eco-friendly as we possibly can be' (Interview 2, p. 4). 'We're trying to do something sustainable for the benefit of the planet, benefit of the future' (Interview 1, p. 6).</p> <p><b>Case B</b> 'We have secured external investment from our investors and that means they are driving the economic side of it, they want to push the economic side of it and we have to manage that so it doesn't pull away from the environmental or social impacts that we are really keen to do. However, they are really interlinked (...). There are more and more customers that say, were so glad that (...) you are looking at the off-cuts, you are looking at your environmental impact and you're listening to what we say and you are raising awareness as much as you are. So actually, instead of thinking about it like a push pull, sometimes we just re-frame it and we think, actually does the social campaigning that we can do, does that actually have a positive impact on our market share? Well actually it does. Instead of looking at it like something that distracts you from pushing the economic stuff forward, it can actually be a way of bolstering the economic stuff if it's done correctly and it's holistically embedded throughout the business' (Interview 2, p. 3).</p> <p><b>Case C</b> 'To date we've always tried to take the purest CE approach we can but (...) it's a tough one to align with profit I'd say' (Interview 1, p. 3).</p> <p><b>Case D</b> 'There is definitely an inspiration in terms of biomimicry and being inspired by the way that nature operates to then create business models that are more put nature first as well (...). [We] 'have got a board member for the planet (...). Essentially that's exactly what it should be. All decisions should be made with having that in mind. (...). Nature as a stakeholder, that's what we love to say, we love to see that, we understand it. We are also very customer centric. We understand that the best businesses in the world are customer centric. But at the same time, we're also nature centric. We never lose that. It's really easy to lose that balance and to be just persuaded by the higher profit or the higher margin. But for us it's just at the core of who we are, and it's at the core of our ambition as well' (Interview 1, p. 3).</p>
Socially oriented	<p><b>Case A</b> 'I think the future for us would be we're doing our part to deal with and neutralise a waste stream (...). So that's really the sort of five-year, ten-year idea is for that sort of, that resource to be recategorized not as waste but as something useful' (Interview 1, p. 5).</p> <p><b>Case B</b> 'We want you to feel really empowered when you wear our product' (Interview 1, p. 3). 'The other thing is, we want to talk about the empowerment of women, and we want to say that body differences are fine. Let's be visible, let's be empowered by just understanding that people's bodies are not all the same and some women have no boobs, and some women have one, and some men have one or no boobs - some men get breast cancer too. But all of us have these different things that have happened to us. We might have caesarean scars; we might have all sorts of different things that have happened to our bodies, and to have these firm definitions of, you need two breasts to be a woman, it's just not really something that we want to propagate' (Interview 1, pp. 4–5). 'My ideal when we get to 20 years down the line is that we've established the product methods enough that we could actually embed a production pod within a community so that that community can take ownership of their own production of a boost breast form. So maybe a local hospital in Nigeria could have a small production pod from us - and we've developed the production pod system for manufacture, that's the whole point of not overproducing or underproducing, is the production pod that we've developed - and they could have a production pod somewhere around the world where women would get to choose... They would focus on the sizes that that community needs' (Interview 1, p. 6). [We want] 'to be a voice for people and to say, look were listening, we aren't medical professionals, were not actually trying to make massively medicalised products, what we're trying to do is just make something that helps you to feel better (...). And the business does give us the platform to raise the things that customers say to us with other decision makers or supply chain related businesses' (Interview 2, p. 3).</p> <p><b>Case C</b> [The repair guides is about] 'changing mindsets. So, if there is a slight damage to the clothes it's not the end of the world, it's kind of part of the journey of the product and you know if it is a serious repair then you get it repaired it doesn't need to be thrown away. And so, we've passed on some resources again it's something that we want to scale up into You Tube videos and Instagram reels and things like that. It can again get that message across, but I think it's an important pillar to any circular fashion business is to champion kind of repair as well' (Interview 1, p. 5). 'We put a proportion of our profits (5%) towards campaigns that we thought were beneficial' (Interview 1, p. 5).</p>

TABLE 2 (Continued)

Features of PBMs	Cases and sources
	<p>'You can place a pre-order [and] wait a month for instance. And so, it's trying to rewire the instant gratification and try and make people more content with delayed gratification. That they can engage in a slower way of doing fashion' (Interview 1, p. 4).</p> <p><b>Case D</b></p> <p>'It is making social change via businesses that are sustainable, but it's not just sustainable from resources perspective, but it's sustainable ethically, paying living wages (...). I felt that sustainability was part of the board table in my view. So, we had the people, the planet and the profit to take account of, and luckily, we've been backed up by investors and stakeholders and advisors that believe the same' (Interview 2, p. 1).</p>
Stakeholder oriented	<p><b>Case A</b></p> <p>'A lot of the decisions around the product itself are made by back and forth communication (...) we're looking at end users looking at (...) what specifications they would require and making sure that we're producing something that at the end of the day can be used (...). Obviously, we constantly take feedback from our staff. We try and have a level of flatarchy when it comes to the research and development. So, we sort of emphasise that although we do have a head of a department and they may be a junior without that role we encourage sort of conversations and ideas and feedback or even pushback from all levels because obviously from the smallest seed a tree can grow. So, we want to make sure that everyone in the company has a voice when it comes to R&amp;D decision making' (Interview 1, p. 6).</p> <p><b>Case B</b></p> <p>'One of my biggest partners I think is always the women that we do this for because we really are keen on co-design and cooperation and there wouldn't be any point in us doing what we do if we didn't keep checking in with women and listening to what they said (...) we try and treat those people like they are stakeholders essentially, because they are really stakeholders (...).is that focus on the women who buy our products, or who are helping us develop our products, and putting them at the centre of mostly what we do, or trying to put them at the centre of what we do so that we can make sure that we fulfil their needs (...) our design teams are always checking with people on our mailing list to say: We've done this thing, this is a concept, what do you think of it? And those types of activities are really important to embed throughout the team. It's not just me doing the checking, it's not just women phoning me and telling me things. They phone all of us, or we all have contact with the women in our community' (Interview 1, p. 5).</p> <p><b>Case C</b></p> <p>'When you talk about circular economy, I don't think it necessarily has direct implications to social. I think it very much has that kind of environmental focus. But I mean it's something for us that is, it's an important consideration as a business (...) So, ensuring that wherever we're getting the garments produced that those [producing are] paid fairly for instance' (Interview 1, p. 2).</p> <p><b>Case D</b></p> <p>'I think we are very democratic in ... I would say that, in our interaction. We're not very hierarchical. We're very much about offering guidance but then leaving space for feedback and leaving space for proposals coming from the rest of the team. We encourage communication, honesty, transparency' (Interview 2, p. 3).</p> <p>'There is a lot of talking, a lot of listening, a lot of team work, working collaboratively, so there is definitely collaboration, (...). It's like every voice is heard and every voice is valued' (Interview 2, p. 5).</p>
Committed leadership	<p><b>Case A</b></p> <p>'We've come up with a more efficient, more sustainable way of producing lactic acid from waste' (interview 1, p. 5)</p> <p>'I think shared vision is very important and that's something we try and emphasise. Obviously, we're trying to do something sustainable for the benefit of the planet, benefit of the future so I feel like we try and instil that enthusiasm within our staff. Trying to make sure they see the vision that the company has (...) and we get people working towards a shared goal which is fantastic' (interview 1, p. 6).</p> <p><b>Case B</b></p> <p>'The main accountability is to our customers and to try and make their world a nicer place, and that's what underpins everything (...). We are a profit-making company, but it's not really a profit driven company if that makes sense (...). I feel like we're a people driven company rather than a profit driven company (...). Even for people in Western countries where people are rich and the quality of life is better, actually, just giving the opportunity to access exercise or to be more healthy and to support wellbeing after breast cancer, it's just very important really. It's really important to the individual' (Interview 1, p. 7).</p> <p><b>Case C</b></p> <p>'I think it certainly takes commitment to stay true and to not deviate from [circular] principles' (...) I want to set an example for circularity in the fashion industry (...) and therefore try and accelerate the shift to circularity in the fashion industry (Interview 1, pp. 3–4).</p> <p><b>Case D</b></p> <p>[I started this venture] 'because we were dissatisfied with the options for building materials that were already available. We decided that we wanted to revalorize waste streams and work with technologies that could allow us to do that (...) my motivation has always been about preserving the ecosystem and preserving those beautiful landscapes and nature that we are surrounded with' (Interview 1, p. 1).</p> <p>'The future that we would like to see, is a future in which our homes are built with low carbon materials and revalorized waste streams. A vision for the business would be to be the market leading company for sustainable building materials. I think that is what we would love to see. In Europe we would like to see that with our own operations, but then we've also thought</p>

(Continues)

TABLE 2 (Continued)

Features of PBMs	Cases and sources
	about franchising or licensing those same technologies that we've been developing in developing countries so that the waste that each country produces can be revalorized into buildings. It's so important for everyone to have shelter and to live in healthy homes. It's an industry that needs disruption, for sure, and that's where we would like to come in' (Interview 1, p. 3).

TABLE 3 CBMs and competitive advantage.

Prompting question	Do you think that the environmental sustainability angle adds to your competitive advantage?
Case A	'I think so. I think at the moment there's a lot of considerations that a customer or a buyer or even a company makes in choosing new products or new processes into their business and I think one of the biggest considerations today in 2022 is that sustainability needs to be on the top of the agenda' (Interview 1, p. 3).
Case B	'Yes definitely, and it is something people tell us, that they care about it. We did look at this quite closely (...) and it is part of the USP that we offer, is our focus on sustainability as much as we can' (Interview 1, p. 8).
Case C	'I think so (...) it might be a differentiation to an extent' (Interview 1, p. 3).
Case D	'We think that the supply chain part is definitely a source of competitive advantage because we can make our product more affordable than if we were just buying our product from the market as a commodity. There's volatile pricing for biomass in general but also new biomass, virgin timber, virgin materials, virgin cellulose, virgin hemp, this is a commodity and is really expensive' (Interview 1, p. 2).

UK, for example, this in the past has involved regenerating old plots of land. Case C business model fits with 'Circulate' and 'Eliminate' principles and with 'Loop' and 'Share' measures in the ReSOLVE framework (EMF et al., 2015).

#### 4.4 | Case D: bio-composite material for the construction industry

Case D is a start-up manufacturing bio-composite material for the construction industry. Particularly, it manufactures acoustic and thermal insulation sheets that are carbon negative (the product is 100% biomass, sequestering carbon that would otherwise be burnt through incineration; the mycelium networks used also capture carbon through its growth) from 100% renewable and bio-based materials sourced from industrial waste, diverting biomass from incineration. Its insulation sheets are also breathable and regulate moisture, thereby contributing to create a comfortable indoor environment. The company production plant runs almost entirely on solar energy and it has a take back policy. This means that unused products from overordering can be returned within the returns period, and end of life panels can be returned and recycled into new panels. Furthermore, its manufacturing process is highly water and energy efficient as it uses 90% less water and 40% less electricity than polystyrene, and the company aims at becoming waste negative, that is, consuming more waste than what is produced. Case D business model fits with 'Circulate' and 'Eliminate' principles and with 'Regenerate' and 'Loop' measures in the ReSOLVE framework (EMF et al., 2015).

## 5 | FINDINGS AND DISCUSSION

To illustrate the relationship between CBMs and PBMs, this section matches the features of PBMs against quotes and extracts deriving from primary and secondary data. Recalling Section 2, the characteristics of PBMs are as follows: *exponential, sustainable/circular/frugal, embracing paradox, integration, socially oriented, stakeholder oriented and committed leadership* (O'Higgins & Zsolnai, 2017). Table 2 illustrates how the characteristics of the selected CBMs fit with the features of PBMs.

This research also finds that CBMs contribute to competitive advantage via costs savings, providing a differential advantage over competitors and responding to consumers' preferences for products with sustainability credentials. These findings support previous research analysing the performances of SMEs implementing CE principles (Dey et al., 2022; Salvioni et al., 2022). Table 3 illustrates how CBMs contribute to competitive advantage.

This study also highlights some distinctive challenges that have been encountered by the small, circular start-ups investigated in this research. Particularly, they include: finding partners (investors) with the same circular mindset, sustainable sourcing, communicating the value proposition, educating consumers to change their purchasing attitudes, balancing different goals (economic, environmental and social) and managing the risks and the complexities associated with running the business entirely on their own. Some of these research findings show commonalities with previous studies exploring challenges and barriers to CBMs implementation, and particularly, financial difficulties/uncertainty about accessing external funding for SMEs and start-ups, difficulties in raising awareness of circular value



**TABLE 4** CBMs and challenges.

Prompting question	What are the distinctive challenges you are encountering in developing your circular business model?
Case A	'I guess the biggest challenge (...) is not cutting corners, not taking, not doing the easy chemistry or the easy and simple chemistry but then challenge ourselves to make sure that the process that we're deciding to do is the most sustainable' (Interview 1, p. 6) 'I think the biggest challenge we've faced is doing it as a fully private entity. So, whilst we've had support from grants and other organisations, if you look at a lot of the peers who are doing similar things in a similar space, a lot of the times they're still heavily connected to things like for example, university (...) whereas what we've done, obviously we've done it from a more private entity. So, equipment that we've needed, a lot of the time, we've had to purchase unless we're able to work out a collaboration with another organisation to be able to use their equipment, but obviously a lot of the time, those collaborations need to be pre-planned. It may take three months, four months for an application or collaboration request to be processed. So, then obviously that slows down innovation' (Interview 2, pp. 4–5).
Case B	'I think, if I'm really honest, at the beginning we had a real problem getting people to understand what we were trying to do' (Interview 1, p. 7). 'I worked really hard to find sustainable sourcing for it because, to be honest, cotton is difficult anyway isn't it, cotton isn't always the most sustainable thing; it uses a lot of water. So, I looked for places that we could get the cotton bags but where they were genuinely as sustainable as they could be, where we could find places that used ethical sourcing principles that had UK offices that checked on where things were coming from' (Interview 1, p.4). 'I think the balance [of economic, environmental and social dimensions] is tricky, because you have different push and pull factors on each of those three things that you mentioned. So, you can feel a little bit that you might be pulled on one direction that compromises another. So, for example, with investment, we have secured external investment from our investors and that means they are driving the economic side of it, they want to push the economic side of it and we have to manage that so it doesn't pull away from the environmental or social impacts that we are really keen to do' (Interview 2, p. 3).
Case C	'I think there's a huge kind of education piece that needs to be bridged. And to bridge that that gap, that information gap could cost a lot of money in creating the awareness and creating change. And so, I think to have an impact you do need to have a large, engaged following and you need a lot of capital otherwise you are a drop in the ocean (...). As a company like us, you almost need to undo and rewrite some of that and then change that kind of sustainability messaging to more of that circular messaging' (Interview 1, p. 4).
Case D	'We are not a quick growing business like maybe software is or other industries. Especially in a venture capitalist environment, that is usually looked down upon. We need to really be resilient and find the right kind of money and the right kind of investors to partner up with, because it's incredibly hard to find those investors that put people and profit and planet first, like we do' (Interview 1, p. 4).

propositions among customers and value chain barriers for start-ups (Fraccascia et al., 2021; Geissdoerfer et al., 2023; Oghazi & Mostaghel, 2018). Table 4 summarises these findings.

## 6 | CONCLUSION

This article highlights that CBMs can be considered as PBMs as they exhibit PBMs underlying features. As noted earlier, PBMs are necessary to reframe the business-natural environment relationship to thrive in the age of the Anthropocene. Associating CBMs with PBMs enhances further the standing of CE thinking and CBMs as viable vision and instruments to bring our economy more in line with planetary boundaries. To the best of this author's knowledge, there are no studies exploring the relationship between CBMs and PBMs in the current literature. Furthermore, the contribution of this research is original because it validates the merits that are associated with CE thinking and CBMs by drawing on the broader business and society literature, and thereby, going beyond the CE literature itself. This article also advances understanding of how CBMs look like whereas current CE literature is mostly conceptual (Kanda et al., 2021), and it does so from the perspectives of small and start-up companies, which

have been less investigated than large organisations so far (Gennari, 2022; Suchek et al., 2022; Van Opstal & Borms, 2023). The case studies in this research are an additional element of novelty. In fact, Companies A and D operate in the 'biological cycle' of the CE whilst it is the 'technical cycle' that prevails in the CBMs literature published to date (Kanda et al., 2021). Moreover, Company D is an example of company operating in the B2B context whereas most of the CBMs literature is focussed on examples from the B2C context (Reim et al., 2021). Overall, this article shows that all the small organisations investigated are committed to make a positive societal impact, contrarily to some studies finding that SMEs often exhibit low levels of sustainability maturity (e.g., Salvador et al., 2023).

Furthermore, this research casts some light on how CBMs contribute to competitive advantage, which is not thoroughly investigated in current literature yet (Silvério et al., 2023). In terms of challenges pertaining to CBMs implementation, the findings from this research illustrate that they are almost all external to the companies' investigated. This highlights that a whilst a single organisation might be willing and skilled to implement CE principles in its strategies and operations, managing and overcoming external challenges slow down the innovation process. This is unfortunate because the transition towards the CE requires the rapid scaling up of innovative business

models. In addition to contributing to the academic literature, this research could be useful to practitioners that are at the forefront of embracing CE principles and leading the transition towards circular production and consumption systems. In fact, this research could raise awareness about the potential challenges resulting from the implementation of CBMs and the way in which CBMs contribute to competitive advantage.

In terms of limitations, this study is based on four cases only, and thereby, other scholars are encouraged to build additional evidence to enhance the generalisability of these findings. Also, scholars may want to investigate how challenges to the implementation of CBMs vary across other geographical and/or industrial contexts. Additionally, it is worth investigating whether the CBMs of large and established organisations exhibit the same characteristics as the CBMs of SMEs in relation to PBMs. Finally, future studies can investigate further how exactly CBMs contribute to competitive advantage and organisational success. Since it is argued that the transition towards the CE must be business led (Webster, 2013), it is important to demonstrate how the CE could be a route to organisational resilience and sustainable and sustained competitive advantage so that more businesses are enticed to embrace circularity.

#### CONFLICT OF INTEREST STATEMENT

The author has no conflict of interest to declare.

#### ORCID

Roberta De Angelis  <https://orcid.org/0000-0002-8324-454X>

#### REFERENCES

- Baskin, J. (2015). Paradigm dressed as epoch: The ideology of the Anthropocene. *Environmental Values*, 24, 9–29. <https://doi.org/10.3197/096327115X14183182353746>
- Becker, C. U. (2023). Ethical underpinnings for the economy of the Anthropocene: Sustainability ethics as key to a sustainable economy. *Ecological Economics*, 211, 107868. <https://doi.org/10.1016/j.ecolecon.2023.107868>
- Berry, J. M. (2002). Validity and reliability issues in elite interviewing. *PS Political Science and Politics*, 35, 679–682. <https://doi.org/10.1017/S1049096502001166>
- Blaikie, N. V. H. (2000). *Designing social research: The logic of anticipation*. Polity Press.
- Bryman, A. (2016). *Social research methods* (5th ed.). Oxford University Press.
- Calisto Friant, M., Vermeulen, W. J. V. & Salomone, R. (2020). A typology of circular economy discourse: Navigating the diverse visions of a contested paradigm. *Resources, Conservation & Recycling*, 161, 104917.
- Crutzen, P. J., & Stoermer, E. F. (2000). The “Anthropocene”. *IGBP Newsletter*, 41, 17–18.
- Dey, P. K., Malesios, C., Chowdhury, S., Saha, K., Budhwar, P., & De, D. (2022). Adoption of circular economy practices in small and medium-sized enterprises: Evidence from Europe. *International Journal of Production Economics*, 248, 108496. <https://doi.org/10.1016/j.ijpe.2022.108496>
- Ding, S., Tukker, A., & Ward, H. (2023). Opportunities and risks of internet of things (IoT) technologies for circular business models: A literature review. *Journal of Environmental Management*, 336, 117662. <https://doi.org/10.1016/j.jenvman.2023.117662>
- Dominko, M., Primc, K., Slabe-Erker, R., & Kalar, B. (2022). A bibliometric analysis of circular economy in the fields of business and economics: Towards more action-oriented research. *Environment, Development and Sustainability*, 25, 5797–5830. <https://doi.org/10.1007/s10668-022-02347-x>
- Dubois, A., & Gadde, L.-E. (2002). Systematic combining: An abductive approach to case research. *Journal of Business Research*, 55, 553–560. [https://doi.org/10.1016/S0148-2963\(00\)00195-8](https://doi.org/10.1016/S0148-2963(00)00195-8)
- EC (European Commission). 2023. *SME definition*. Retrieved September 2023 from [https://ec.europa.eu/growth/smes/sme-definition\\_en](https://ec.europa.eu/growth/smes/sme-definition_en).
- Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, 50, 25–32. <https://doi.org/10.5465/amj.2007.24160888>
- Ellen MacArthur Foundation, McKinsey & SUN. (2015). *Growth within: A circular economy vision for a competitive Europe*. Retrieved July 2023 from <http://www.ellenmacarthurfoundation.org/books-and-report>.
- EMF (Ellen MacArthur Foundation). (2015). *Towards a circular economy: Business rationale for an accelerated transition*. Retrieved May 2022 from <https://ellenmacarthurfoundation.org/publications>
- Fraccascia, L., Giannocaro, I., Agarwal, A., & Hansen, E. G. (2021). Business models for the circular economy: Empirical advances and future directions. *Business Strategy and the Environment*, 30, 2741–2744. <https://doi.org/10.1002/bse.2896>
- Geissdoerfer, M., Santa-Maria, T., Kirchherr, J., & Pelzeter, C. (2023). Drivers and barriers for circular business model innovation. *Business Strategy and the Environment*, 32, 3814–3832. <https://doi.org/10.1002/bse.3339>
- Gennari, F. (2022). The transition towards a circular economy. A framework for SMEs. *Journal of Management and Governance*, 27, 1423–1457. <https://doi.org/10.1007/s10997-022-09653-6>
- Ghuri, P., & Gronhaug, K. (2005). *Research methods in business studies—A practical guide* (3rd ed.). Prentice Hall.
- Henry, M., Bauwens, T., Hekkert, M., & Kirchherr, J. (2020). A typology of circular start-ups—An analysis of 128 circular business models. *Journal of Cleaner Production*, 245, 118528. <https://doi.org/10.1016/j.jclepro.2019.118528>
- Heras-Saizarbitoria, I., Boiral, O., & Testa, F. (2023). Circular economy at the company level: An empirical study based on sustainability reports. *Sustainable Development*, 31, 2307–2317. <https://doi.org/10.1002/sd.2507>
- Kanda, W., Geissdoerfer, M., & Hjelm, O. (2021). From circular business models to circular business ecosystems. *Business Strategy and the Environment*, 30, 2814–2829. <https://doi.org/10.1002/bse.2895>
- Kirchherr, J., Urbinati, A., & Hartley, K. (2023). Circular economy: A new research field? *Journal of Industrial Ecology*, 00, 1–13.
- Lacy, P. & Rutqvist, J. (2015). *Waste to wealth: The circular economy advantage*. Palgrave Macmillan.
- Langley, A. (1999). Strategies for theorizing from process data. *Academy of Management Review*, 24, 691–710. <https://doi.org/10.2307/259349>
- Lee Park, C., Fracarolli Nunes, M., & Paiva, E. L. (2021). (Mis)managing overstock in luxury: Burning inventory and brand trust to the ground. *Journal of Consumer Behaviour*, 20, 1664–1674. <https://doi.org/10.1002/cb.1990>
- Leipold, S., Petit-Boix, A., Luo, A., Helander, H., Simoens, M., Ashton, W. S., Babbitt, C. W., Bala, A., Bening, C. R., Birkved, M., Blomsa, F., Boks, C., Boldrin, A., Deutz, P., Domenech, T., Ferronato, N., Gallego-Schmid, A., Giurco, D., Hobson, K., ... Xue, B. (2023). Lessons, narratives, and research directions for a sustainable circular economy. *Journal of Industrial Ecology*, 27, 6–18. <https://doi.org/10.1111/jiec.13346>
- Lindgreen, A., Di Benedetto, C. A., & Beverland, M. B. (2021). How to write up case-study methodology sections. *Industrial Marketing Management*, 96, A7-A10.

- Lüdeke-Freund, F. (2020). Sustainable entrepreneurship, innovation, and business models: Integrative framework and propositions for future research. *Business Strategy and the Environment*, 29, 665–681. <https://doi.org/10.1002/bse.2396>
- Manzhynski, S., & Figge, F. (2020). Coopetition for sustainability: Between organizational benefit and societal good. *Business Strategy and the Environment*, 29, 827–837. <https://doi.org/10.1002/bse.2400>
- OECD (Organisation for Economic Cooperation and Development). (2023). *OECD SME and entrepreneurship outlook 2023*. Retrieved August 2023 from <https://www.oecd.org/publications/oecd-sme-and-entrepreneurship-outlook-8d707502-en.htm>
- Oghazi, P., & Mostaghel, R. (2018). Circular business model challenges and lessons learned—An industrial perspective. *Sustainability*, 10, 739. <https://doi.org/10.3390/su10030739>
- O'Higgins, E., & Zsolnai, L. (2017). What is progressive business? In E. O'Higgins & L. Zsolnai (Eds.), *Progressive business models: Creating sustainable and pro-social enterprise* (pp. 3–25). Palgrave Macmillan.
- Pietrulla, F., & Frankenberger, K. (2022). A research model for circular business models—Antecedents, moderators, and outcomes. *Sustainable Futures*, 4, 100084. <https://doi.org/10.1016/j.sfr.2022.100084>
- Pinkse, J., Lüdeke-Freund, F., Laasch, O., Snihur, Y., & Bohnsack, R. (2023). The organizational dynamics of business models for sustainability: Discursive and cognitive pathways for change. *Organization & Environment*, 36, 211–227. <https://doi.org/10.1177/10860266231176913>
- Reim, W., Sjödin, D., & Parida, V. (2021). Circular business model implementation: A capability development case study from the manufacturing industry. *Business Strategy and the Environment*, 30, 2745–2757. <https://doi.org/10.1002/bse.2891>
- Rizos, V., Behrens, A., Van der Gaast, W., Hofman, E., Ioannou, A., Kafyke, T., Flamos, A., Rinaldi, R., Papadelis, S., Hirschnitz-Garbers, M., et al. (2016). Implementation of circular economy business models by small and medium-sized enterprises (SMEs): Barriers and enablers. *Sustainability*, 8, 1212. <https://doi.org/10.3390/su811212>
- Rocca, L., Veneziani, M., & Carini, C. (2023). Mapping the diffusion of circular economy good practices: Success factors and sustainable challenges. *Business Strategy and the Environment*, 32, 2035–2048. <https://doi.org/10.1002/bse.3235>
- Roome, N., & Louche, C. (2016). Journeying toward business models for sustainability: A conceptual model found inside the black box of organisational transformation. *Organization & Environment*, 29, 11–35. <https://doi.org/10.1177/1086026615595084>
- Salvador, R., Veng Søbørg, P., Søgaard Jørgensen, M., Schmidt-Kallesøe, L. L., & Brüning Larsen, S. (2023). Explaining sustainability performance and maturity in SMEs—Learnings from a 100-participant sustainability innovation project. *Journal of Cleaner Production*, 419, 138248. <https://doi.org/10.1016/j.jclepro.2023.138248>
- Salvioni, D. M., Bosetti, L., & Fornasari, T. (2022). Implementing and monitoring circular business models: An analysis of Italian SMEs. *Sustainability*, 14, 270.
- Schaltegger, S., Hansen, E. G., & Lüdeke-Freund, F. (2016). Business models for sustainability: Origins, present research, and future avenues. *Organization & Environment*, 29, 3–10. <https://doi.org/10.1177/1086026615599806>
- Schroeder, P., Anggraeni, K., & Weber, U. (2019). The relevance of circular economy practices to the sustainable development goals. *Journal of Industrial Ecology*, 23, 77–95. <https://doi.org/10.1111/jiec.12732>
- Shrivastava, P., & Zsolnai, L. (2020). Business and society in the Anthropocene. In D. M. Wasieleski & J. Weber (Eds.), *Sustainability business and society 360* (Vol. 4) (pp. 3–15). Emerald Publishing Limited. <https://doi.org/10.1108/S2514-175920200000004002>
- Siggelkow, N. (2007). Persuasion with case studies. *Academy of Management Journal*, 50, 20–24. <https://doi.org/10.5465/amj.2007.24160882>
- Silvério, A. C., Ferreira, J., Odete Fernandes, P., & Dabić, M. (2023). How does circular economy work in industry? Strategies, opportunities, and trends in scholarly literature. *Journal of Cleaner Production*, 412, 137312. <https://doi.org/10.1016/j.jclepro.2023.137312>
- Steffen, W. (2021). Introducing the Anthropocene: The human epoch. *Ambio*, 50, 1784–1787. <https://doi.org/10.1007/s13280-020-01489-4>
- Stumpf, L., Schöggel, J.-P., & Baumgartner, R. (2021). Climbing up the circularity ladder?—A mixed-methods analysis of circular economy in business practice. *Journal of Cleaner Production*, 316, 128158. <https://doi.org/10.1016/j.jclepro.2021.128158>
- Suchek, N., Ferreira, J., & Fernandes, P. (2022). A review of entrepreneurship and circular economy research: State of the art and future directions. *Business Strategy and the Environment*, 31, 2256–2283. <https://doi.org/10.1002/bse.3020>
- Tedesco, M., Simioni, F., Sehnem, S., Ferreira Soares, J., & Moreira Coelho, L. (2022). Assessment of the circular economy in the Brazilian planted tree sector using the Resolve framework. *Sustainable Production and Consumption*, 31, 397–406. <https://doi.org/10.1016/j.spc.2022.03.005>
- United Nations (UN). (2023). *Secretary-General's statement on the IPCC Working Group 1 Report on the Physical Science Basis of the Sixth Assessment*. Retrieved September 2023 from [https://www.un.org/sg/en/content/secretary-generals-statement-the-ipcc-working-group-1-report-the-physical-science-basis-of-the-sixth-assessment?\\_gl=1\\*30roow\\*\\_ga\\*MTYwMjI5NTg0NS4xNjk1MjkyMjk2\\*\\_ga\\_TK9BQL5X7Z\\*MTY5NTI5MjI5Ni4wLjAuMTY5NTI5MjI5Ni4wLjAuMA](https://www.un.org/sg/en/content/secretary-generals-statement-the-ipcc-working-group-1-report-the-physical-science-basis-of-the-sixth-assessment?_gl=1*30roow*_ga*MTYwMjI5NTg0NS4xNjk1MjkyMjk2*_ga_TK9BQL5X7Z*MTY5NTI5MjI5Ni4wLjAuMTY5NTI5MjI5Ni4wLjAuMA)
- United Nations Framework Convention on Climate Change (UNFCCC). (2023). *What is the triple planetary crisis*. Retrieved September 2023 from <https://unfccc.int/blog/what-is-the-triple-planetary-crisis>
- Van Opstal, W., & Borms, L. (2023). Start-ups and circular economy strategies: Profile differences, barriers and enablers. *Journal of Cleaner Production*, 396, 136510. <https://doi.org/10.1016/j.jclepro.2023.136510>
- Velter, M. G. E., Bitzer, V., Bocken, N. M. P., & Kemp, R. (2020). Sustainable business model innovation: The role of boundary work for multi-stakeholder alignment. *Journal of Cleaner Production*, 247, 119497. <https://doi.org/10.1016/j.jclepro.2019.119497>
- Webster, K. (2013). What might we say about a circular economy? Some temptations to avoid if possible. *World Futures*, 69, 542–554. <https://doi.org/10.1080/02604027.2013.835977>
- World Economic Forum (WEF). (2023). 8 ways the circular economy will transform how business is done. Retrieved September 2023 from <https://www.weforum.org/agenda/2023/03/8-ways-the-circular-economy-outperforms-traditional-business-models/>
- Yin, R. (2014). *Case study research. Design and methods* (5th ed.). Sage Publications Ltd.

**How to cite this article:** De Angelis, R. (2024). Circular economy business models as progressive business models: Evidence from circular start-ups. *Business Strategy and the Environment*, 1–12. <https://doi.org/10.1002/bse.3821>



## APPENDIX A: INTERVIEW PROTOCOL

- Why did you enter this industry?
  - Under which company structure is your organisation operating?
  - What size is your business?
  - Which stage is your business at?
  - How many people do you employ?
  - Which is your role within this organisation?
  - What is your business model value proposition?
  - How would you describe your business model value creation and delivery?
- Who are the partners you are working with to implement your circular business model?
  - Which forms of value stem from the implementation of your circular business model?
  - Do you think that the environmental sustainability angle adds to your competitive advantage?
  - What are the distinctive challenges you are encountering in developing your circular business model?
  - Would you like to add anything else before finishing off?