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Article — Published Version

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Business Strategy and the Environment

Provided in Cooperation with:

John Wiley & Sons

Suggested Citation: Hausdorf, Michaela; Timm, Jana-Michaela (2022) : Business research for sustainable development: How does sustainable business model research reflect doughnut economics?, Business Strategy and the Environment, ISSN 1099-0836, Wiley, Hoboken, NJ, Vol. 32, Iss. 6, pp. 3398-3416,
<https://doi.org/10.1002/bse.3307>

This Version is available at:

<https://hdl.handle.net/10419/288105>

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RESEARCH ARTICLE

Business research for sustainable development: How does sustainable business model research reflect doughnut economics?

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Funding information

Excellence Strategy of the German Federal and State Governments, Grant/Award Number: Transfer@UHH; Heinrich Böll Stiftung, Grant/Award Number: Dissertation grant

Abstract

In this study, we explore sustainable business model (SBM) research through the lens of doughnut economics (DE). By conducting an integrative literature review, we analyse concepts that reflect the seven principles of DE at the business model level. We identify 23 SBM concepts and develop a framework that draws on cognitive science theory to distinguish between seven abstract and 16 concrete concepts. The contribution of our study is threefold: First, the framework enhances the theoretical understanding of SBM concepts that mirror DE. Second, our study presents seven unique avenues for shifting the SBM research agenda. Third, the findings have the potential to inspire SBM innovation in practice.

KEYWORDS

business strategy, ecological economics, multi-level, stakeholder value, sustainability, sustainable development, transition, value creation

1 | INTRODUCTION

Research on sustainable business models (SBMs) is a young and dynamic stream of research that explores how companies propose, create, deliver and capture value (Lüdeke-Freund, 2020; Lüdeke-Freund et al., 2018; Lüdeke-Freund & Dembek, 2017; Méndez-León et al., 2022; Preghenella & Battistella, 2021). Recently, scholarly interest has moved towards the question of how SBMs foster broader sustainability transitions and, in turn, how such transitions spawn novel SBMs (Aagaard et al., 2021; Proka et al., 2018; Schaltegger et al., 2022). SBM researchers stress the need to develop new ways of thinking to design SBMs that boost comprehensive transitions towards a sustainable development of business and society as a whole (Aagaard et al., 2021; Birkin et al., 2009; Madsen, 2020; Schaltegger et al., 2022; Shakeel et al., 2020).

To inspire this research discourse and, thus, SBM innovation towards sustainability, in this study, we look at SBM literature through a novel lens: doughnut economics (DE) (Raworth, 2012, 2017).

We explore the underlying concepts of key SBM articles from the perspective of the economic mindset DE in order to answer the research question: How does key SBM research reflect DE? We conduct an integrative literature review of SBM literature and inductively explore SBM concepts mirroring the seven principles of DE.

The contribution of our study is threefold: First, we present a framework illustrating seven abstract and 16 concrete concepts that reflect DE at the SBM level. This framework enhances the theoretical understanding at the intersection of both streams of research. Moreover, it supports SBM scholars in evaluating their own work according to DE principles and in integrating the concepts into their future research. Second, as a consequence from our findings, we present seven unique avenues for shifting the SBM research agenda. Third, our study has the potential to encourage SBM innovation in practice, as practitioners can be inspired by the SBM concepts identified in this study as an entry point for business model innovation that contributes to broader sustainability transitions.

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This article is structured as follows: In Section 2, we present information on the background of SBM and DE and discuss why it is procreative to link the two concepts. After that, we introduce our methodological approach in Section 3, which is followed by the presentation of our findings in Section 4. In Section 5, we discuss our findings and, finally, draw our conclusions in Section 6.

2 | BACKGROUND

Business models describe the architecture of a business and strongly influence its outcomes in terms of environmental, social and economic sustainability (Lüdeke-Freund, 2020; Lüdeke-Freund et al., 2018; Lüdeke-Freund & Dembek, 2017). Schaltegger et al. (2016, p. 6) propose that 'a business model for sustainability helps describing, analyzing, managing, and communicating (i) a company's sustainable value proposition to its customers, and all other stakeholders, (ii) how it creates and delivers this value, (iii) and how it captures economic value while maintaining or regenerating natural, social, and economic capital beyond its organizational boundaries'. Growing academic interest makes SBM research an emerging field of research (Lüdeke-Freund & Dembek, 2017; Preghenella & Battistella, 2021).

In the face of worldwide societal and environmental challenges (Edwards, 2021; Ripple et al., 2019), scholars increasingly examine how SBMs can contribute to the socio-ecological transformation (Aagaard et al., 2021; Bidmon & Knab, 2018; Bocken & Short, 2021; Bonfanti et al., 2022; Hofmann, 2019; Jolink & Niesten, 2015; Proka et al., 2018; Rivera, 2019; van Waes et al., 2018). For example, scholars argue that 'existing or novel business models drive transitions by facilitating the stabilization process of technological innovation and supporting their breakthrough' (Bidmon & Knab, 2018, p. 903). Scholars refer to this field of research as 'business models for sustainability transitions' (Aagaard et al., 2021, p. 2). In order to develop business models that profoundly foster broader sustainability transitions, a novel way of thinking is necessary (Casarejos et al., 2018; Ramos et al., 2020). New societal challenges in rapidly changing environments make traditional approaches to solving problems ineffective (Casarejos et al., 2018; Ramos et al., 2020; Santa-Maria et al., 2021). It becomes vital to rethink conceptualisations of business models and the way scholars explore them (Aagaard et al., 2021; Madsen, 2020; Shakeel et al., 2020).

We suggest to rethink SBM research through the lens of DE. The British economist Kate Raworth (2017) developed DE in response to current societal challenges (Edwards, 2021; Raworth, 2012). She argues that DE is an economic mindset suitable to tackle 21st-century challenges, as it holistically considers planetary boundaries and social needs as the basis for economic and social activities (Leach et al., 2013; Raworth, 2012; Rockström et al., 2009; Steffen et al., 2015). Thereby, Raworth (2017) builds her argumentation partly on ecological economics, a field of research that has been established more than 30 years ago (Costanza, 1991; Dale, 2020; Daly, 2007; Faber, 2008; Röpke, 2004). As ecological economics is a broad and diverse field of research that encompasses various competing schools

of thought (Lucas, 2010; Seager, 2008; Spash, 2017), Raworth (2017) consolidated some of these theories and enriched them by ideas from other fields of research with the intention to develop DE as a novel economic mindset (Dale, 2020).

In her comprehensive book on DE, Raworth (2017) presents seven principles: Principle (1) 'change the goal' recommends to shift the economic goal from a focus on growth towards 'meet the needs of all within the means of the planet' (Raworth, 2017, p. 32). Principle (2) 'see the big picture' suggests to acknowledge the role of regulation, society and commons in theorising on economies instead of solely focussing on markets. Principle (3) 'nurture human nature' criticises the concept of homo economicus in economic theory and draws a more complex image of human nature, viewing humans as 'social, interdependent, approximating' people (Raworth, 2017, p. 23). Principle (4) 'get savvy with systems' proposes a shift from mechanical towards systems thinking in economic theorising. Principle (5) 'design to distribute' recommends to develop economies that fulfil fundamental needs of every human being, building on a just distribution of income and property (Raworth, 2017). Principle (6) 'create to regenerate' calls for a shift towards a regenerative economy and encourages to not just 'do no harm' to the environment but actively give something back to nature (Raworth, 2017). Principle (7) 'be agnostic about growth' suggests to develop economies that make societies thrive—whether they financially grow or not.

Currently, DE is gaining attention and positive resonance in theory (Dearing et al., 2014; Hajer et al., 2015; Leach et al., 2013; Luukkanen et al., 2021) and practice (Amsterdam, 2021; Regen Melbourne, 2021; Santa-Maria et al., 2021). However, most research on DE applies the concept at the global, country or regional level (Klapper et al., 2021). For example, Brannigan (2020), Casarejos et al. (2021), Dale (2020), Dearing et al. (2014), Gross (2020) and Olsson (2020) analyse the implications of DE for global and regional social-political as well as social-ecological systems. Luukkanen et al. (2021) and Roy et al. (2021) investigate the relationship between globalisation, sustainability, and socio-economic development.

We have identified four studies that connect DE to the business level (see Edwards, 2021; Preluca, 2021; Schoenmaker & Schramade, 2018; Stopper et al., 2016). For example, Edwards (2021) builds on DE to develop a 'pluralist and integrative growth perspective' (p. 3088) at the business level. Stopper et al. (2016) propose a sustainability model for manufacturing business organisations based on DE. They adapt the parameters introduced in the visual framework by Raworth (which represents the first of the seven principles of DE) to manufacturing small and middle-sized enterprises (SMEs). However, in their work, the authors are focusing on the first of the seven principles and do not address the other six principles of DE.

We propose that apart from these studies, some principles of DE might be encapsulated in SBM research. With a first screening before we started our study, we found that, for example, circular or closed-loop business models (e.g., Santa-Maria et al., 2021) may represent regenerative design traits as proposed in DE. Understanding how SBM research reflects DE already today helps operationalise the seven principles. This may prevent DE from

missing its mark and running into the void, as it currently misses operationalised design details (Hajer et al., 2015). As ‘critical transitions can occur at any scale’ (Dearing et al., 2014, p. 228), the effects of a large number of single business models accumulate and affect global socio-economic systems (Loorbach et al., 2010). Hence, SBM research may act as a catalyst for DE (Aagaard et al., 2021; Bolton & Hannon, 2016). Moreover, we propose that SBM research can benefit from DE, as the seven principles of DE can foster novel SBMs by inspiring business model innovation towards sustainability. For example, DE may contribute to growth agnostic, regenerative and distributive SBM.

3 | METHODOLOGICAL APPROACH

In order to answer our research question ‘How does key SBM research reflect DE?’, we conducted an integrative literature review as presented by Toronto and Remington (2020). An integrative literature review is a structured, rigorous and reproducible approach for assessing and understanding a body of literature on a specific research question (Torraco, 2005). The methodology is recommended as a sound approach to generate novel knowledge and to bridge fundamental research gaps (Mukhuty et al., 2022). Figure 1 presents our methodological approach.

In a first step, we identified the need for a review at the intersection of SBM and DE research and formulated a research question as outlined in the previous parts. Building on that, we identified the sample, decided on a search strategy and formulated criteria for inclusion and exclusion of articles. We identified relevant key SBM articles by searching for the terms ‘sustain*’ AND ‘business model’ in the topic OR abstract OR keywords in the database Business Source

Complete (via EBSCO Host). This led to 3043 results in total. Thereof, we identified 2139 journal articles. We filtered for English journal articles and screened the remaining 2062 articles by checking whether the business model concept constituted a core issue. To do so, we screened the titles and abstracts of the articles. We excluded the papers from further analysis if the business model concept made up only a side topic. Moreover, we checked the understanding of sustainability applied in the articles. We excluded articles if they only referred to economic sustainability. If they dealt with either economic and environmental, or economic and social perspectives, or the holistic view of sustainability, including the economic, environmental, social and cultural perspectives, we included them in the further analysis. Our screening led to the exclusion of 1562 articles, resulting in a sample of 500 articles.

In order to elaborate deeply on the reflection of each of the seven DE principles in these papers, we decided to put a limit on the number of publications. A number of 40 publications made a profound elaboration realistic for our team of two researchers. We decided to select the 40 ‘key’ SBM articles for this deep analysis. Focussing on key articles guarantees to include the ‘nucleus’ in a field of research and is in line with comparable literature reviews (see, e.g., Betancourt Morales & Zartha Sossa, 2020). We propose that this ‘nucleus’ of SBM research also affects the broader field of research.

To identify key SBM articles, we considered two academic measures for scholarly impact: the author-level productivity measured by an authors’ number of publications in SBM research (Cortés et al., 2016) and the publications’ number of citations (Goodall, 2006). According to the normative theory of citations, the more often a certain research article is cited, the more essential it is for research development (Goodall, 2006; Thor et al., 2018). Thus, we first sorted our list of 500 papers by the number of citations and added information

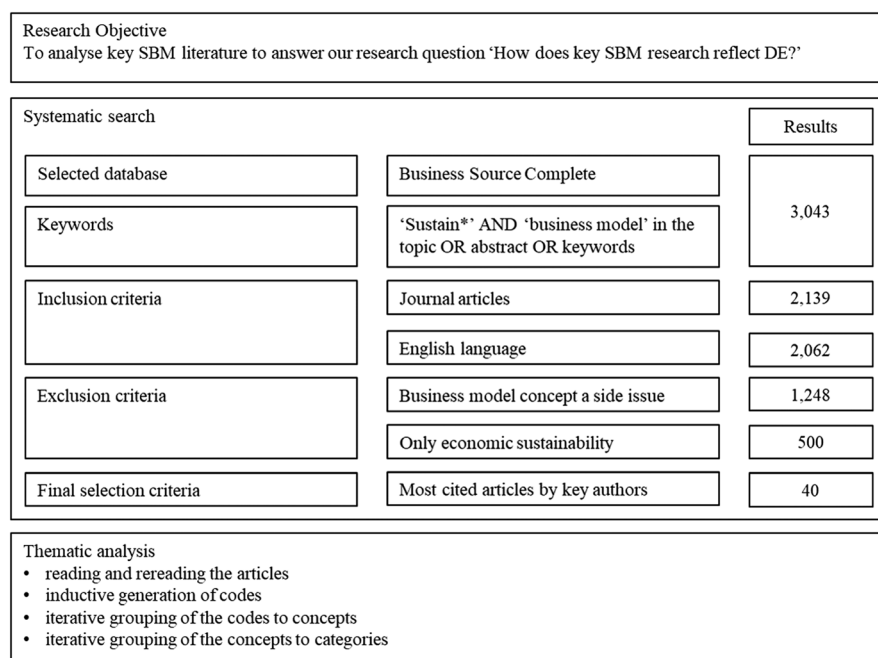


FIGURE 1 Integrative literature review methodology used in this study

TABLE 1 Final sample of 40 SBM publications

Authors	Year	Title	Journal	Citations
Baldassarre et al.	2020	Addressing the design-implementation gap of SBM by prototyping: A tool for planning and executing small-scale pilots	Journal of Cleaner Production	15
Baldassarre, B., Calabretta, G., Bocken, N. M. P., & Jaskiewicz, T.	2017	Bridging sustainable business model innovation and user-driven innovation: A process for sustainable value proposition design	Journal of Cleaner Production	107
Bocken, N. M. P., & Geradts, T. H.	2020	Barriers and drivers to sustainable business model innovation: Organization design and dynamic capabilities	Long Range Planning	24
Bocken, N. M. P., & Short, S. W.	2016	Towards a sufficiency-driven business model: Experiences and opportunities	Environmental Innovation and Societal Transitions	129
Bocken, N. M. P., De Pauw, I., Bakker, C., & Van Der Grinten, B.	2016	Product design and business model strategies for a circular economy	Journal of Industrial and Production Engineering	576
Bocken, N. M. P., Rana, P., & Short, S. W.	2015	Value mapping for sustainable business thinking	Journal of Industrial and Production Engineering	131
Bocken, N. M. P., Schuit, C. S., & Kraaijenhagen, C.	2018	Experimenting with a circular business model: Lessons from eight cases	Environmental Innovation and Societal Transitions	90
Bocken, N. M. P., Short, S. W., Rana, P., & Evans, S.	2013	A value mapping tool for sustainable business modelling	Corporate Governance	217
Bohnsack, R., Pinkse, J., & Kolk, A.	2014	Business models for sustainable technologies: Exploring business model evolution in the case of electric vehicles	Research Policy	216
Boons, F., & Lüdeke-Freund, F.	2013	Business models for sustainable innovation: State-of-the-art and steps towards a research agenda	Journal of Cleaner Production	776
Carayannis, E. G., Sindakis, S., & Walter, C.	2015	Business model innovation as lever of organizational sustainability	The Journal of Technology Transfer	99
Christensen, T. B., Wells, P., & Cipcigan, L.	2012	Can innovative business models overcome resistance to electric vehicles? Better place and battery electric cars in Denmark	Energy Policy	95
Curtis, S. K., & Mont, O.	2020	Sharing economy business models for sustainability	Journal of Cleaner Production	18
Di Vaio, A., Boccia, F., Landriani, L., & Palladino, R.	2020	Artificial intelligence in the agri-food system: Rethinking SBM in the COVID-19 scenario	Sustainability	17
Dreyer, B., Lüdeke-Freund, F., Hamann, R., & Faccar, K.	2017	Upsides and downsides of the sharing economy: Collaborative consumption business models' stakeholder value impacts and their relationship to context	Technological Forecasting and Social Change	56
Evans, S., Vladimirova, D., Holgado, M., Van Fossen, K., Yang, M., Silva, E. A., & Barlow, C. Y.	2017	Business model innovation for sustainability: Towards a unified perspective for creation of sustainable business models	Business Strategy and the Environment	233
Ferasso, M., Beliaeva, T., Kraus, S., Clauss, T., & Ribeiro-Soriano, D.	2020	Circular economy business models: The state of research and avenues ahead	Business Strategy and the Environment	27
Freudenreich, B., Lüdeke-Freund, F., & Schaltegger, S.	2020	A stakeholder theory perspective on business models: Value creation for sustainability	Journal of Business Ethics	48
Gall, M., Wiener, M., de Oliveira, C. C., Lang, R. W., & Hansen, E. G.	2020	Building a circular plastics economy with informal waste pickers: Recyclate	Resources, Conservation and Recycling	11

(Continues)

TABLE 1 (Continued)

Authors	Year	Title	Journal	Citations
		quality, business model, and societal impacts		
Gao, P., & Li, J.	2020	Understanding SBM: A framework and a case study of the bike-sharing industry	Journal of Cleaner Production	9
Geissdoerfer, M., Bocken, N. M. P., & Hultink, E. J.	2016	Design thinking to enhance the sustainable business modelling process—A workshop based on a value mapping process	Journal of Cleaner Production	125
Geissdoerfer, M., Morioka, S. N., de Carvalho, M. M., & Evans, S.	2018	Business models and supply chains for the circular economy	Journal of Cleaner Production	177
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	35
Kurucz, E. C., Colbert, B. A., Luedeke-Freund, F., Upward, A., & Willard, B.	2017	Relational leadership for strategic sustainability: Practices and capabilities to advance the design and assessment of SBM	Journal of Cleaner Production	62
Lüdeke-Freund, F., & Dembek, K.	2017	Sustainable business model research and practice: Emerging field or passing fancy?	Journal of Cleaner Production	83
Lüdeke-Freund, F., Carroux, S., Joyce, A., Massa, L., & Breuer, H.	2018	The sustainable business model pattern taxonomy—45 patterns to support sustainability-oriented business model innovation	Sustainable Production and Consumption	57
Manninen, K., Koskela, S., Antikainen, R., Bocken, N. M. P., Dahlbo, H., & Aminoff, A.	2018	Do circular economy business models capture intended environmental value propositions?	Journal of Cleaner Production	122
Pedersen, E. R. G., & Netter, S.	2015	Collaborative consumption: Business model opportunities and barriers for fashion libraries	Journal of Fashion Marketing and Management	63
Ritala, P., Huotari, P., Bocken, N. M. P., Albareda, L., & Puumalainen, K.	2018	Sustainable business model adoption among S&P 500 firms: A longitudinal content analysis study	Journal of Cleaner Production	72
Schaltegger, S., Hansen, E. G., & Lüdeke-Freund, F.	2016	Business models for sustainability: Origins, present research, and future avenues	Organization and Environment	176
Schaltegger, S., Lüdeke-Freund, F., & Hansen, E. G.	2012	Business cases for sustainability: The role of business model innovation for corporate sustainability	International Journal of Innovation and Sustainable Development	409
Stubbs, W., & Cocklin, C.	2008	Conceptualizing a “sustainability business model”	Organization and Environment	494
Todeschini, B. V., Cortimiglia, M. N., Callegaro-de-Menezes, D., & Ghezzi, A.	2017	Innovative and sustainable business models in the fashion industry: Entrepreneurial drivers, opportunities, and challenges	Business Horizons	78
Tunn, V. S. C., Bocken, N. M. P., van den Hende, E. A., & Schoormans, J. P. L.	2019	Business models for sustainable consumption in the circular economy: An expert study	Journal of Cleaner Production	61
Urbinati, A., Chiaroni, D., & Chiesa, V.	2017	Towards a new taxonomy of circular economy business models	Journal of Cleaner Production	181
Vasileiadou, E., Huijben, J. C. C. M., & Raven, R. P. J. M.	2016	Three is a crowd? Exploring the potential of crowdfunding for renewable energy in the Netherlands	Journal of Cleaner Production	58
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	12

TABLE 1 (Continued)

Authors	Year	Title	Journal	Citations
Wells, P., & Seitz, M.	2005	Business models and closed-loop supply chains: A typology	Supply Chain Management	97
Yang, M., Evans, S., Vladimirova, D., & Rana, P.	2017	Value uncaptured perspective for sustainable business model innovation	Journal of Cleaner Production	108
Yip, A. W., & Bocken, N. M. P.	2018	SBM archetypes for the banking industry	Journal of Cleaner Production	78

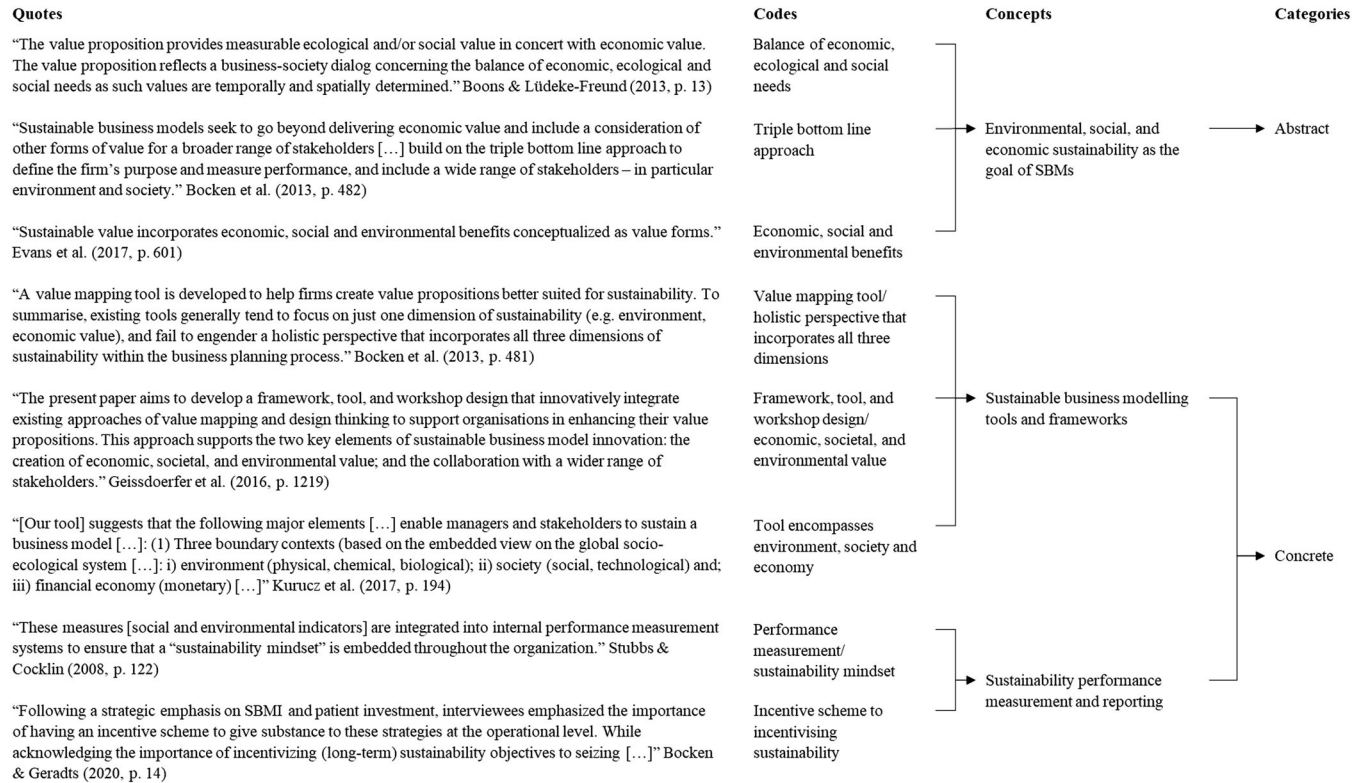


FIGURE 2 Thematic analysis (exemplary for doughnut economics' Principle 1 'change the goal')

on the authors' performance in SBM research, i.e., an authors' number of journal articles published in this given field of research. Finally, we selected the 30 most cited publications by top authors from our list of 500 articles. These studies were published by authors with between five and 34 SBM publications and were cited between 72 and 776 times. As more novel publications are typically not among the most cited ones, these would not have been included in our sample. To integrate them nevertheless, we repeated the process explained above for the SBM literature of 2020 and 2021. This is important, as an integrative review should include both recently published and older articles (Torraco, 2005). Among our initial list of 500 articles, 169 papers were published in 2020 and 2021. We sorted those by the number of citations, added information on the authors' performance in SBM research and selected the 10 most cited publications by top authors from our list of 169 papers that were published in 2020 and 2021. These studies were published by authors with between two and 11 SBM publications and were cited between nine

and 48 times. Finally, our sample consisted of 40 most cited articles by top authors from SBM research published between 2005 and 2021 (as presented in Table 1).

We used thematic analysis to assess and synthesise the concepts that mirror the seven principles of DE among the SBM literature in our sample (Toronto & Remington, 2020). This interpretative approach to synthesise knowledge from a field of research aims at developing a conceptual understanding beyond the knowledge gained from individual studies (Morrow & Mowatt, 2015; TM et al., 2021). The work by Braun and Clarke (2006) as well as Toronto and Remington (2020) guided our analysis.

For each of the seven principles, we applied the following procedure: First, we got familiar with each of the research articles by reading and rereading them and tagged quotes that addressed the focal DE principle. We used the software MAXQDA in this process. Second, we inductively generated codes that pointed towards SBM concepts for the principle in focus. This leads to 71 codes in total for all DE

principles together. Third, we iteratively grouped the codes to 23 concepts.¹ Thereby, we went through an iterative process of reviewing and rereading the publications and, respectively, adapted the codes and concepts.

During the process, two categories inductively emerged and helped to further group the concepts: abstract and concrete concepts. According to cognitive science theory, abstract concepts refer to unspecific concepts (Galbraith & Underwood, 1973; Wiemer-Hastings & Xu, 2005). They have been used in a normative way, i.e., to express how a SBM *should be* but lacked further information on how this normative requirement can be further operationalised. In contrast, concrete concepts refer to specific terms. These have been described more detailedly in the sample articles. Differentiating between abstract and concrete concepts is important as it indicates *in which way* SBM research reflects DE principles. Abstract concepts are less imaginable and realisable. Consequently, abstract concepts would indicate potential for a more specific and concrete reflection of DE principles at the SBM level. Finally, we developed a framework to visualise our insights in form of a meta-synthesis (Campbell et al., 2003; Sandelowski et al., 1997). Figure 2 provides an overview of the thematic analysis, exemplary for the first principle of DE, 'change the goal'.

4 | FINDINGS

We were able to identify 23 SBM concepts mirroring DE. Among them are seven abstract and 16 concrete concepts. The principles 'create to regenerate' and 'change the goal' are inherent in nearly all publications in our sample. 'Get savvy with systems' and 'see the big picture' are reflected through abstract concepts by more than half of the articles in our sample. Considerably fewer articles mirror these principles through concrete concepts. The principles 'design to distribute', 'nurture human nature' and 'be agnostic about growth' show the greatest potential for a more in-depth reflection in key SBM research. Furthermore, our findings show that none of the seven principles of DE is inherent in *all* articles and none of the articles addresses *all* of the seven principles of DE. In order to make our findings more accessible, we present for each principle how SBM articles in our sample reflect these (see Table 2 as a summary and Figure 3 for a visualisation).

4.1 | Change the goal

34 articles in our sample reflect the first principle 'change the goal'. Among these articles, we identified three concepts mirroring this principle: the abstract concept 'environmental, social, and economic sustainability as the goal of SBMs' and the two concrete concepts 'sustainability performance measurement and reporting' and 'sustainable business modelling tools and frameworks'.

Similarly, 34 out of 40 publications address this principle through the abstract concept 'environmental, social, and economic

sustainability as the goal of SBMs'. For example, Stubbs and Cocklin (2008, p. 121) propose that SBMs convey a business 'purpose, vision and/or mission in terms of social, environmental, and economic outcomes'. All these articles have in common that they apply a holistic understanding of sustainability, which is in line with Raworth's call for acknowledging environmental *and* social concerns in concert with economic activities. Similarly, Manninen et al. (2018) call for a 'more holistic view of value that integrates social and environmental goals, to ensure balancing or ideally alignment of all stakeholders' (p. 414). In their work on SBM innovation, Evans et al. (2017) expressed such a holistic understanding in relation to the value dimensions of SBMs. They state that 'sustainable value incorporates economic, social and environmental benefits conceptualized as value forms' (p. 601) and 'each of the three sub-systems must be viable and healthy if the planet system is to flourish' (p. 602).

27 out of 40 publications reflect the principle 'change the goal' through more concrete concepts such as 'sustainability performance measurement and reporting' and 'sustainable business modelling tools and frameworks'. For example, Bocken et al. (2013) developed a value mapping tool to help firms create value propositions better suited for sustainability in which they try 'to engender a holistic perspective that incorporates all three dimensions of sustainability within the business planning process' (p.482). Stubbs and Cocklin (2008, p. 122) propose that social and environmental indicators 'are integrated into internal performance measurement systems to ensure that a "sustainability mindset" is embedded throughout the organization'.

4.2 | See the big picture

A total of 27 articles in our sample reflect the second principle 'see the big picture'. Among these articles, we identified three concepts: the abstract concept 'holistic stakeholder perspective' and the two concrete concepts 'multi-dimensional flows between a focal SBM and all stakeholders' and 'analysing the holistic business environment as part of SBM'.

25 out of 40 publications reflect the principle through the abstract concept 'holistic stakeholder perspective'. For example, Evans et al. (2017, p. 601) propose that 'SBMs require a system of sustainable value flows among multiple stakeholders including the natural environment and society as primary stakeholders'. Kurucz et al. (2017) also call for a holistic stakeholder perspective by arguing that difficult challenges need transdisciplinary approaches and bringing together governments, businesses, civil society and academia. The authors present a 'strongly sustainable business model canvas' (p. 201), encompassing human and non-human actors and their fundamental needs.

The second concept is a more concrete one: 'multi-dimensional flows between a focal SBM and all stakeholders'. A total of 10 out of 40 publications incorporate this concept. One of the most salient examples is the article by Freudenreich et al. (2020). The authors stress the need to consider multiple stakeholders and the mutual

TABLE 2 Abstract and concrete SBM concepts reflecting DE

DE principles	SBM concepts reflecting DE		No. of articles integrating the concept
	Abstract	Concrete	
1. Change the goal of SBMs	Environmental, social and economic sustainability as the goal of SBMs	SBM articles in our sample integrating the SBM concepts	34
		Baldassarre et al. (2017), Baldassarre et al. (2020), Bocken et al. (2013), Bocken et al. (2015), Bocken et al. (2018), Bocken and Geradts (2020), Bocken and Short (2016), Boons and Lüdeke-Freund (2013), Carayannis et al. (2015), Curtis and Mont (2020), Di Vaio et al. (2020), Dreyer et al. (2017), Evans et al. (2017), Ferasso et al. (2020), Geissdoerfer et al. (2016), Geissdoerfer et al. (2018), Gall et al. (2020), Gao and Li (2020), Geissdoerfer et al. (2017), Lüdeke-Freund et al. (2018), Manninen et al. (2018), Henry et al. (2018), Schaltegger et al. (2012), Schaltegger et al. (2016), Stubbs and Cocklin (2008), Todeschini et al. (2017), Tunn et al. (2019), Vasileiadou et al. (2016), Velter et al. (2020), Wells and Seitz (2005), Yang et al. (2017), Yip and Bocken (2018)	
2. See the big picture	Holistic stakeholder perspective	Sustainable business modelling tools and frameworks	22
		Baldassarre et al. (2017), Baldassarre et al. (2020), Bocken et al. (2013), Bocken et al. (2015), Bocken et al. (2018), Bocken and Short (2016), Boons and Lüdeke-Freund (2013), Carayannis et al. (2015), Curtis and Mont (2020), Evans et al. (2017), Freudenreich et al. (2020), Gao and Li (2020), Geissdoerfer et al. (2016), Geissdoerfer et al. (2018), Henry et al. (2020), Kurucz et al. (2017), Manninen et al. (2018), Schaltegger et al. (2012), Stubbs and Cocklin (2008), Velter et al. (2020), Yang et al. (2017), Yip and Bocken (2018)	
3. Nurture human nature	Cooperative, social view of human nature	Sustainability performance measurement and reporting	5
		Bocken and Geradts (2020), Boons and Lüdeke-Freund (2013), Evans et al. (2017), Ferasso et al. (2020), Stubbs and Cocklin (2008)	
2. See the big picture	Holistic stakeholder perspective	Sustainable business modelling tools and frameworks	25
		Baldassarre et al. (2017), Bocken et al. (2013), Bocken et al. (2015), Bocken et al. (2018), Bocken and Short (2016), Boons and Lüdeke-Freund (2013), Christensen et al. (2012), Di Vaio et al. (2020), Dreyer et al. (2017), Evans et al. (2017), Ferasso et al. (2020), Freudenreich et al. (2020), Gall et al. (2020), Gao and Li (2020), Geissdoerfer et al. (2016), Geissdoerfer et al. (2018), Henry et al. (2018), Kurucz et al. (2017), Lüdeke-Freund and Dembek (2017), Manninen et al. (2018), Stubbs and Cocklin (2008), Todeschini et al. (2017), Tunn et al. (2019), Vasileiadou et al. (2016)	
3. Nurture human nature	Cooperative, social view of human nature	Multidimensional flows between a focal SBM and all stakeholders	10
		Baldassarre et al. (2017), Bocken et al. (2013), Bocken et al. (2015), Dreyer et al. (2017), Evans et al. (2017), Freudenreich et al. (2020), Geissdoerfer et al. (2016), Manninen et al. (2018), Stubbs and Cocklin (2008), Vasileiadou et al. (2016)	
3. Nurture human nature	Cooperative, social view of human nature	Analysing the holistic business environment as part of SBM	4
		Bocken et al. (2013), Curtis and Mont (2020), Gao and Li (2020), Schaltegger et al. (2016)	
3. Nurture human nature	Cooperative, social view of human nature	Sustainability performance measurement and reporting	4
		Bocken et al. (2015), Boons and Lüdeke-Freund (2013), Freudenreich et al. (2020), Stubbs and Cocklin (2008)	

(Continues)

TABLE 2 (Continued)

DE principles	SBM concepts reflecting DE		No. of articles integrating the concept
	Abstract	Concrete	
	Trustful relationships with all stakeholders in SBM	Concrete	5
	Relational SBM leadership practices and capabilities		3
4. Get savvy with systems	Embeddedness in a wider system	Baldassarre et al. (2017), Baldassarre et al. (2020), Bocken et al. (2013), Bocken et al. (2015), Bocken et al. (2016), Bocken et al. (2018), Bocken and Geradts (2020), Bohnsack et al. (2014), Boons and Lüdeke-Freund (2013), Christensen et al. (2012), Curtis and Mont (2020), Di Vaio et al. (2020), Dreyer et al. (2017), Ferraso et al. (2020), Freudenreich et al. (2020), Geissdoerfer et al. (2016), Geissdoerfer et al. (2018), Henry et al. (2020), Kurucz et al. (2017), Lüdeke-Freund and Dembek (2017), Manninen et al. (2018), Ritala et al. (2018), Todeschini et al. (2017), Tunni et al. (2019), Urbinati et al. (2017), Vasileiadou et al. (2016), Velter et al. (2020), Yang et al. (2017)	30
	Systemic SBM modelling	Baldassarre et al. (2017), Bocken et al. (2013), Bocken et al. (2015), Bocken et al. (2016), Bocken et al. (2018), Bocken and Geradts (2020), Curtis and Mont (2020), Freudenreich et al. (2020), Geissdoerfer et al. (2016), Kurucz et al. (2017), Manninen et al. (2018), Ritala et al. (2018), Stubbs and Cocklin (2008), Urbinati et al. (2017), Velter et al. (2020), Yang et al. (2017)	16
	Systemic SBM evolution	Bocken et al. (2015), Bohnsack et al. (2014), Christensen et al. (2012), Gao and Li (2020), Kurucz et al. (2017), Ritala et al. (2018), Schaltegger et al. (2016)	7
5. Design to distribute	Appropriate distribution of economic costs and benefits among all stakeholders	Baldassarre et al. (2017), Bocken et al. (2016), Boons and Lüdeke-Freund (2013), Dreyer et al. (2017), Evans et al. (2017), Lüdeke-Freund et al. (2018), Lüdeke-Freund and Dembek (2017), Manninen et al. (2018), Schaltegger et al. (2016), Stubbs and Cocklin (2008), Yang et al. (2017)	11
	Distributive financial SBM mechanisms	Lüdeke-Freund et al. (2018), Stubbs and Cocklin (2008)	2
	Stable and holistic SBM networks	Evans et al. (2017)	1
6. Create to regenerate	Regenerating natural, social and economic value	Bocken et al. (2015), Freudenreich et al. (2020), Geissdoerfer et al. (2018), Henry et al. (2020), Kurucz et al. (2017), Lüdeke-Freund et al. (2018), Manninen et al. (2018), Schaltegger et al. (2016), Todeschini et al. (2017), Velter et al. (2020)	10
	Sharing and collaborative SBM	Baldassarre et al. (2017), Bocken et al. (2015), Bocken et al. (2016), Bocken et al. (2018), Bocken and Geradts (2020), Bocken and Short (2016), Bohnsack et al. (2014), Carayannis	31

TABLE 2 (Continued)

DE principles	SBM concepts reflecting DE		No. of articles integrating the concept
	Abstract	Concrete	
	SBM articles in our sample integrating the SBM concepts		
	<p>et al. (2015), Curtis and Mont (2020), Di Vaio et al. (2020), Dreyer et al. (2017), Ferasso et al. (2020), Freudenreich et al. (2020), Gao and Li (2020), Geissdoerfer et al. (2018), Henry et al. (2020), Kurucz et al. (2017), Lüdeke-Freund et al. (2018), Lüdeke-Freund and Dembek (2017), Manninen et al. (2018), Pedersen and Netter (2015), Ritala et al. (2018), Schaltegger et al. (2012), Schaltegger et al. (2016), Stubbs and Cocklin (2008), Todeschini et al. (2017), Tunn et al. (2019), Urbinati et al. (2017), Vasileiadou et al. (2016), Velter et al. (2020), Yang et al. (2017)</p>		8
	Sufficiency SBM	<p>Bocken et al. (2013), Bocken et al. (2016), Bocken and Geradts (2020), Bocken and Short (2016), Christensen et al. (2012), Ritala et al. (2018), Tunn et al. (2019), Yip and Bocken (2018)</p>	8
	Circular economy, closed loop and life cycle thinking in SBM	<p>Baldassarre et al. (2017), Bocken et al. (2013), Bocken et al. (2015), Bocken et al. (2016), Bocken et al. (2018), Bocken and Geradts (2020), Bocken and Short (2016), Curtis and Mont (2020), Di Vaio et al. (2020), Evans et al. (2017), Ferasso et al. (2020), Freudenreich et al. (2020), Gall et al. (2020), Gao and Li (2020), Geissdoerfer et al. (2016), Geissdoerfer et al. (2018), Henry et al. (2020), Lüdeke-Freund et al. (2018), Lüdeke-Freund and Dembek (2017), Manninen et al. (2018), Ritala et al. (2018), Todeschini et al. (2017), Tunn et al. (2019), Urbinati et al. (2017), Velter et al. (2020), Yang et al. (2017)</p>	26
	Sustainable resources or renewable energy in SBM	<p>Baldassarre et al. (2020), Bocken et al. (2015), Bocken et al. (2016), Bocken et al. (2018), Bocken and Geradts (2020), Bocken and Short (2016), Bohnsack et al. (2014), Christensen et al. (2012), Curtis and Mont (2020), Ferasso et al. (2020), Freudenreich et al. (2020), Henry et al. (2020), Kurucz et al. (2017), Manninen et al. (2018), Ritala et al. (2018), Schaltegger et al. (2012), Schaltegger et al. (2016), Stubbs and Cocklin (2008), Todeschini et al. (2017), Urbinati et al. (2017), Vasileiadou et al. (2016), Velter et al. (2020), Yip and Bocken (2018)</p>	23
	Product-service SBMs	<p>Bocken et al. (2013), Bocken et al. (2018), Curtis and Mont (2020), Ferasso et al. (2020), Henry et al. (2020), Lüdeke-Freund and Dembek (2017), Manninen et al. (2018), Ritala et al. (2018), Schaltegger et al. (2012), Schaltegger et al. (2016), Tunn et al. (2016), Tunn et al. (2019), Urbinati et al. (2017), Yang et al. (2017)</p>	13
7. Be agnostic about growth	Decoupling SBMs from growth	<p>Bocken et al. (2013), Bocken and Short (2016)</p>	2
	Sufficiency SBM	<p>Bocken et al. (2013), Bocken et al. (2016), Bocken and Short (2016)</p>	3

Abbreviations: DE, doughnut economics; SBM, sustainable business model.

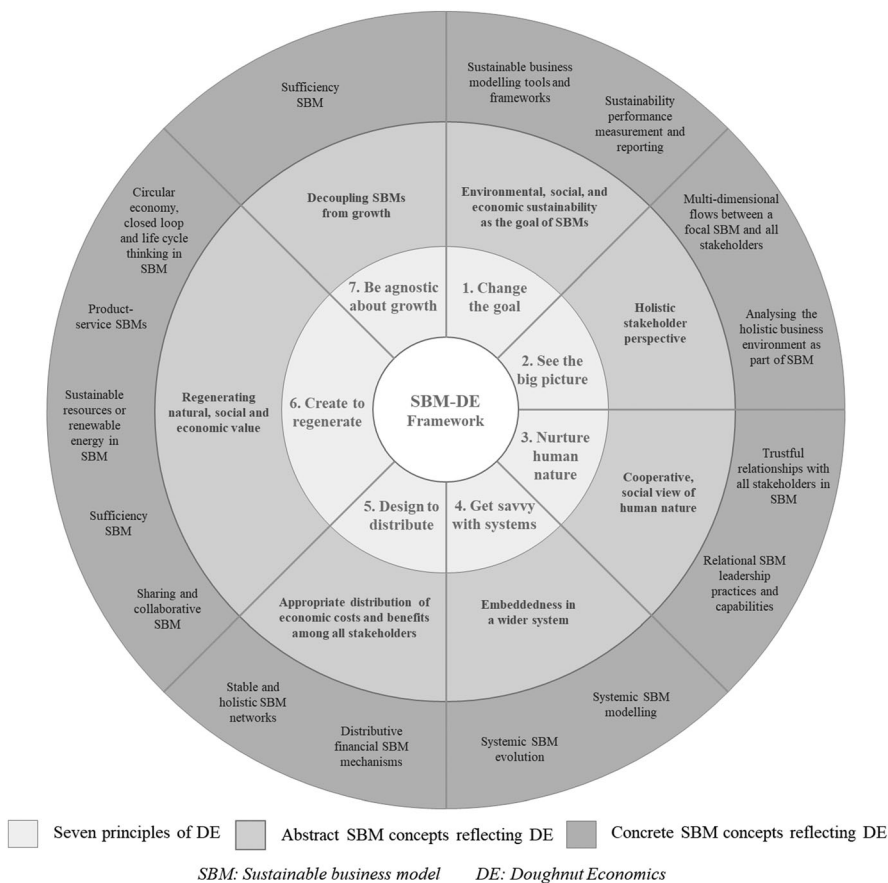


FIGURE 3 Sustainable business model framework for doughnut economics

relationships between them and businesses. They argue that ‘stakeholders are both recipients and (co-)creators of value in joint value creation processes’ (p. 4).

The third concept is ‘analysing the holistic business environment as part of SBM’. For example, Gao & Li (2020, p. 11) stress the need that ‘Firms should consider their business environment when analyzing business models and designing strategies to innovate on them’. The value mapping tool developed by Bocken et al. (2013) supports in profoundly exploring the business environment as part of an SBM. It encompasses 10 stakeholders, for example, the government and local communities.

4.3 | Nurture human nature

A total of 10 articles in our sample reflect the third principle ‘nurture human nature’. Among these articles, we identified three concepts: the abstract concept ‘cooperative, social view of human nature’ and the two concrete concepts ‘trustful relationships with all stakeholders in SBM’ and ‘relational SBM leadership practices and capabilities’.

Four out of 40 publications contain the abstract concept ‘cooperative, social view of human nature’. For example, Freudenreich et al. (2020, p. 12) define SBMs as involving all stakeholders ‘in a respectful and ethically sound manner, which allows the focal business to understand and integrate their interests’. Stubbs and Cocklin

(2008) understand trust, loyalty, cooperation and collaboration as crucial cultural attributes of SBMs. Similarly, Bocken et al. (2015) declare mutually beneficial cooperation as a core element of SBMs.

Besides this abstract concept, we identified the two concrete concepts: ‘trustful relationships with all stakeholders in SBM’ and ‘relational SBM leadership practices and capabilities’. Five out of 40 publications stressed the need for building trustful relationships as a more concrete representation of the focal principle. For example, Stubbs and Cocklin (2008, p. 115) state that effective stakeholder engagement requires ‘building relationships based around trust, being “relevant”, two-way loyalty [...], honesty, integrity, fairness, and equity’. Similarly, Evans et al. (2017) dive deeper in how to concretely build trustful relationships and a sense of community in SBMs.

Three articles in our sample reflect the principle ‘nurture human nature’ by applying relational leadership practices and capabilities. For example, Kurucz et al. (2017) elaborated on ‘relational SBM leadership practices and capabilities’. They understand relational leadership as a ‘collective capacity [...] created in the interactions and relationships among people’ (p. 190), which is in line with Raworth’s call for viewing humans as reciprocating and interdependent. Moreover, they assume that humans do not act entirely rational but instead select the information that supports their personal opinions, which again aligns with Raworth’s understanding of the principle ‘nurture human nature’.

4.4 | Get savvy with systems

A total of 30 articles in our sample reflect the fourth principle of DE. Among these articles, we identified three concepts: the abstract concept ‘embeddedness in a wider system’ and the two concrete concepts ‘systemic SBM modelling’ and ‘systemic SBM evolution’.

30 out of 40 publications in our sample mirror the principle ‘get savvy with systems’ through the abstract concept ‘embeddedness in a wider system as normative requirement on SBM’. For example, Boons & Lüdeke-Freund (2013, p. 14) propose that ‘As a holistic and systemic concept [...], a business model perspective may be expected to contribute to a sustainable innovation agenda’. According to Bocken et al. (2016) and Boons and Lüdeke-Freund (2013), the idea of systemic thinking builds the foundation of closed-loop and circular business models. According to Bocken et al. (2016, p. 308), ‘The recognition of the limits to planetary resource and energy use, and the importance of viewing the world as a “system” where pollution and waste are viewed as a defeat, lay at the foundations of circular economy thinking’. Stubbs and Cocklin (2008) argue that SBMs ‘encompass the systems perspective as well as the firm-level perspective’ (p. 122).

The second concept constitutes ‘systemic business modelling’ as a concrete concept. A total of 16 out of 40 publications describe systemic SBM modelling in a concrete and specific way. For example, Bocken et al. (2013) develop a tool that supports in systemic SBM modelling by systematically and holistically considering positive and negative forms of value created for multiple stakeholders. Geissdoerfer et al. (2016) provide an example for a dynamic way of modelling SBMs. By incorporating design thinking methodologies, they combine business modelling with experimentation, adaptation, learning and evolving. Baldassarre et al. (2017) apply similar iterative and dynamic perspective not only for the overall business modelling process but also for the formulation of specific value dimensions. In their study, the authors concentrate on the sustainable value proposition design.

Among the publications in our sample, seven articles encapsulate the principle through the third concept and systemically analyse SBM evolution. For example, Schaltegger et al. (2016, p. 264) ‘develop a theoretical framework to analyze co-evolutionary business model development for niche pioneers and incumbents’. Bohnsack et al. (2014) analyse the evolution of SBMs in the mobility sector. They show how processes of learning, experimentation and adaptation lead to modified business models. Bocken et al. (2018) argue that ‘Experimentation is an important capability in the transition to a sustainable business’. They have developed a business experimentation framework that fosters internal and external engagement in business evolution.

4.5 | Design to distribute

A total of 11 articles in our sample reflect the principle ‘design to distribute’. Among these articles, we identified three concepts: the abstract concept ‘appropriate distribution of economic costs and

benefits among all stakeholders’ and the two concrete concepts ‘distributive financial SBM mechanisms’ and ‘stable and holistic SBM networks’.

11 articles integrate the abstract concept. For example, Boons & Lüdeke-Freund (2013, p. 13) state that an SBM should secure ‘an appropriate distribution of economic costs and benefits among actors involved in the business model and accounts for the company’s ecological and social impacts’. Similarly, Stubbs & Cocklin (2008, p. 106) call for distributive design traits by stressing the importance of ‘a more equitable distribution of resources across generations. Organizations take a stakeholder view of the firm rather than a shareholder view and acknowledge that nature and future generations are stakeholders’. Lüdeke-Freund & Dembek (2017, p. 1670) extend these normative requirements towards the SBM’s revenue model and propose that ‘organisations need to develop pricing models that include as many customers as possible, instead of maximizing the price and profit margin of every offering’, and ‘This might require patient investors who agree on a financial model that distributes costs and benefits in a just way among an organisation’s stakeholders’.

We identified only three publications that encapsulate concrete concepts: Lüdeke-Freund et al. (2018) and Stubbs and Cocklin (2008) present financial mechanisms that enhance the distributivity of SBMs. For example, Lüdeke-Freund et al. (2018) recommend ‘differential pricing’, ‘freemium’ or ‘innovative product financing’ as very concrete distributive design traits for SBMs. Moreover, the internal and funding structure of an SBM might become more distributive by applying the patterns ‘cooperative ownership’, ‘social business model: empowerment’ and ‘social business models: no dividends’.

Evans et al. (2017, p. 601) use the third concept and recommend stable and holistic networks ‘to reinforce relational ties among members and ensure equitable distribution of value’ Evans et al. (2017, p. 601). The authors dive deeper in how to concretely realise distributive design traits by building up holistic networks that ‘cannot be limited to the creation of value for only one stakeholder group, typically the shareholders, but rather extend to the entire set of stakeholder relationships that become strategic for the long-term success and survival of a firm’.

4.6 | Create to regenerate

‘Create to regenerate’ is the most widespread principle among the publications in our sample. 38 out of 40 publications show a broad range of abstract and concrete concepts mirroring this principle. Among these articles, we identified six concepts: the abstract concept ‘regenerating natural, social and economic value’ and the five concrete concepts ‘circular economy, closed loop and life cycle thinking in SBM’, ‘product-service SBMs’, ‘sharing and collaborative SBM’, ‘sustainable resources or renewable energy in SBM’ and ‘sufficiency SBM’.

10 out of 40 publications reflect the principle through an abstract concept by mentioning regenerativeness as a normative requirement on SBM. For example, Velter et al. (2020, p. 2)

propose that SBMs 'comprise a value proposition to customers [...] while simultaneously regenerating natural, social and economic value'. Similarly, Schaltegger et al. (2016) argue that SBMs describe how a firm 'captures economic value while maintaining or regenerating natural, social and economic capital beyond its organizational boundaries' (p. 268).

26 publications integrated 'circular economy, closed loop and life cycle thinking' as a concrete concept reflecting regenerativeness. Todeschini et al. (2017, p. 761) argue that 'The main idea behind the socioeconomic trend of circular economy is [...] restoration and regeneration'. Similarly to the recognition of planetary boundaries in DE (Raworth, 2017), Bocken et al. (2016, p. 308) argue that 'The recognition of the limits to planetary resource and energy use, and the importance of viewing the world as a "system" where pollution and waste are viewed as a defeat, lay at the foundations of circular economy thinking'. Boons and Lüdeke-Freund (2013) argue that 'business models have to change in a way that reduces corporate footprints and decouples production and consumption from social and ecological impacts' (p. 12). Moreover, they claim that 'a firm actively engages suppliers into sustainable supply chain management, which includes, for example, forms of social issue management and materials cycles that avoid/reuse wastes' (p. 13). Evans et al. (2017) take the same line but use the term 'life cycle thinking' (p. 603). They argue that life cycle thinking is 'an essential concept for developing sustainable product-service systems (PSS) in a holistic way' (p. 603).

31 publications dealt with 'sharing and collaborative SBMs' to achieve regenerativeness. In this vein, Curtis and Mont (2020, p. 1) describe how sharing business models contribute to regenerativeness. Curtis and Mont (2020) critically evaluate the sharing economy and its effect on net consumption. Pedersen and Netter (2015) focus on collaborative consumption. Lüdeke-Freund et al. (2018) argue that 'Private ownership can also inhibit efficient use of products and other assets' (p. 68), which leads to the assumption that collaborative ownership can enhance the efficient use of such products and assets. The fourth category refers to features of sustainable products or materials.

23 publications presented the use of 'sustainable resources or renewable energy' as a concrete concept. For example, Stubbs & Cocklin (2008, p. 123) propose that 'At the systems level, an SBM is characterized by ubiquitous sustainable infrastructure such [...] renewable energy facilities'. A total of 13 publications reflect the principle through the concrete concept 'product-service SBMs'. For example, Yang et al. (2017, p. 1796) state that 'PSS are regarded as those business models in which manufacturers sell an integration of products and services, rather than physical products alone'.

Eight publications introduce sufficiency business models as a concept that mirrors regenerativeness. For example, Bocken & Short (2016) argue that 'Sufficiency-driven business models seek to moderate overall resource consumption' (p. 41) and that 'businesses will need to move beyond eco-efficiency (saving energy and materials), which is close to the conventional business case, to include more radical new approaches such as "sufficiency", which focus on reducing

absolute demand by influencing and mitigating consumption behaviour' (p. 42).

4.7 | Be agnostic about growth

The analysis of the seventh principle showed that this was the least applied principle among the studies in our sample, as only three publications mirrored this principle. Among these articles, we identified two concepts: the abstract concept 'decoupling SBMs from growth' and the concrete concept 'sufficiency SBM'.

Bocken et al. (2013, p. 483) and Bocken and Short (2016) argue that it is necessary to decouple business models from economic growth and therefore address growth agnosticism as a normative requirement on SBM. Bocken and Short (2016, p. 42) argue that 'Political, social and economic systems champion and celebrate consumption-based economic growth [...] which inevitably leads to over-consumption after basic needs have been satisfied'.

Besides this abstract concept, we identified sufficiency business models as a more concrete concept mirroring the focal principle. For example, Bocken et al. (2016) argue that 'a fundamental shift from over-consumption towards a more sufficiency-orientated view of consumption and production, or what has been described as a "sufficiency economy" [...] is therefore essential' (p. 42). Although the authors criticise growth, they do not deny the necessity of growth per se. They rather refuse rapid growth, as it seems to be unable to go along with sustainability, and therefore they advocate a slow and organic growth (Bocken & Short, 2016). Moreover, they explain how the company Miele decouples from growth by pursuing a sufficiency business model strategy.

At first glance, it seemed as if circular SBMs also facilitate growth agnosticism. However, articles dealing with circular SBMs often equate economic growth with prosperity. For example, Geissdoerfer et al. (2018, p.712) argue that circular SBMs may 'mitigate negative impacts without jeopardising growth and prosperity'. Therefore, we did not include circular business models as a concept that reflects growth agnosticism at the business model level.

5 | DISCUSSION

Our findings show that *all* seven principles of DE are encapsulated in key SBM articles in our sample to varying degrees. However, none of the principles is present in *all* articles. We identified 23 SBM concepts reflecting DE. Among them are seven abstract concepts and 16 concrete concepts. Discussing our findings, we start with the principles that are mirrored to a modest extent and proceed with principles that we consider have potential for a deeper reflection. Thereby, we present seven avenues to open up the SBM research field.

We found that 'create to regenerate' is the most widespread principle among the publications in our sample. A total of 36 of 40 articles in our sample reflect the principle through concrete concepts.

This insight suggests that regenerativeness is a core issue in SBM research, which is in line with SBM literature beyond the scope of this study. For example, Emanuelsson et al. (2021), Franco (2019) and Goni et al. (2021) address regenerativeness in SBM research but were not part of our sample.² Our study contributes to this research and advances scholarly knowledge by revealing five concrete concepts that mirror the principle 'create to regenerate'.

The principle 'change the goal' is encapsulated in 34 articles in our sample. However, most of these publications concentrated on unspecific goals that are not as detailed as in Raworth's proposition. Some studies leave it up to the reader to decide what constitutes these goals. Therefore, we invite scholars to consider our first avenue: *Avenue (1) Utilise a richer and more detailed set of goals in SBM research.* The visual framework of the doughnut might provide a valuable tool to derive more differentiated objectives of SBM. With nine environmental and 12 social goals, the doughnut offers guidance in SBM performance measurement that reaches beyond the organisational boundaries. These considerations may also enrich scholarly understanding of 'value creation' in SBM research (Lozano, 2018; Méndez-León et al., 2022). SBM research might understand value creation not only in environmental, societal and economic terms but also in more fine-grained terms (e.g., lower biodiversity loss, reduce air pollution, or flatten ozone layer depletion as environmental goals, and contribute to gender equality, provide housing, or enhance energy supply as social goals).

The exploration of the principle 'get savvy with systems' indicates that 30 articles in our sample reflect this principle through abstract concepts, but only 20 articles present concrete concepts. Therefore, we argue that more research is needed to understand the architecture of systemic SBMs. Buchanan (2019) describes the complex interrelations between parts of a system and the system as a whole. Transferred to the principle 'get savvy with systems' in SBM research, one could ask which SBM design traits are necessary to call a business model 'systemic' and how these design traits work together. Therefore, we invite scholars to our second avenue for SBM research: *Avenue (2) Explore systemic SBMs at the micro-level and their effects at the macro-level.* In order to pursue this avenue, Aagaard et al. (2021) provide an inspiring book encompassing several articles dealing with different levels of inquiry and their mutual relationships. Moreover, research on dynamic business modelling integrates system theory into the process of business modelling and enhances our understanding of causal feedback structures (see, e.g., Cosenz et al., 2020; Stål et al., 2022).

The principle 'see the big picture' has been captured in 27 articles in our sample. A total of 25 studies reflect the principle through an abstract concept: a stakeholder perspective as a normative requirement on SBM. Beyond the scope of this study, the stakeholder view is a core concept in SBM research (see, e.g., Attanasio et al., 2022; Brozovic, 2020; Lozano, 2018). Hence, SBM research is essentially well equipped to contribute to this principle of DE. However, only 13 studies in our sample provide more concrete concepts. Hence, we invite scholars to our third avenue: *Avenue (3) Explore further specific SBM concepts that mirror the principle 'see the big picture'.* Future

research could dig deeper into this principle and analyse it in a broader sample.

A total of 11 out of 40 articles in our sample reflect the principle 'design to distribute' through an abstract concept. 37 articles in our sample lack concrete concepts that provide details on how distributive design traits might look and function in detail. Consequently, we point towards our fourth avenue for SBM research: *Avenue (4) Explore SBMs that are distributive by design.* SBM research might examine how such distributive design traits function (Dekhili & Achabou, 2013; Mjahed Hammami et al., 2018; Norris et al., 2021). The literature on social businesses (Gold et al., 2020; Schrader et al., 2012), social entrepreneurship (Enthoven & Thelken, 2022) and benefit corporations (Liute & De Giacomo, 2022; Mion et al., 2021; Stubbs, 2017) could provide valuable insights for this avenue of research.

Ten articles mirror the principle 'nurture human nature' through abstract or concrete concepts. Seven articles in our sample present concrete concepts by referring to trustful relationships and relational leadership practices and capacities. Hence, we encourage SBM researchers to pursue our fifth avenue: *Avenue (5) Critically reflect on the view of human nature.* SBM scholars might challenge their theories in light of different views of human nature. How might varying views of human nature change the applicability of SBM theories and models? How might SBMs function that build on a novel view of human nature, being 'social, interdependent, approximating' (Raworth, 2017, p. 23)? What might a new view of human nature mean for value proposition, creation, delivery, and capture? Research on androcentric and feminist perspectives in business (Meriläinen et al., 2000) as well as on social cognitive neuroscience in sustainability management (McDonald, 2018) might provide valuable starting points.

Among the articles in our sample, three publications encapsulate the principle 'be agnostic about growth'. Among those, we identified *sufficiency* as the only concrete concept that mirrors growth agnosticism at the business model level. Considerably, more research is necessary in order to explore further concrete concepts (cf. Brozovic, 2020). Consequently, our sixth avenue for research is as follows: *Avenue (6) Explore growth agnostic SBMs.* What might such SBMs look like? How might their revenue and cost streams be structured? How might the success of a growth agnostic SBM be measured? Research on sufficiency (Bocken & Short, 2020; Figge et al., 2014; Freudenreich & Schaltegger, 2020; Heikkurinen et al., 2019) and degrowth (Khmara & Kronenberg, 2018; Kostakis et al., 2018; Nesterova, 2020) might serve as useful points of departure for SBM researchers. Research could also build on Edwards (2021) who reconceptualises business growth and proposes a typology of business strategies that connects growth to social and ecological flourishing and build on Klapper et al. (2021) who call for holistic perspectives on growth.

The concentration on key research articles in SBM literature represents a limitation of this study, as it is possible that other publications than the identified SBM key literature show differing results. For example, research articles which are not entitled as key

literature in this field due to our sampling strategy might provide abstract and concrete concepts beyond those identified up to now. Hence, our findings provide valuable insights into how key SBM articles reflect DE, but generalisations on the entire field of SBM literature cannot be drawn. As a response to this shortcoming, we invite SBM scholars to our seventh avenue for future research: *Avenue (7) Identify further abstract and concrete SBM concepts that mirror the seven DE principles by exploring a broader literature base*. Yet, the sample chosen for this study represents the most cited SBM articles by top SBM authors, and we are positive that this ‘nucleus’ of SBM research has considerable effects on the broader field of research. Consequently, we suggest to particularly explore concepts that mirror those principles that bear the greatest potential for future research: ‘design to distribute’, ‘nurture human nature’ and ‘be agnostic about growth’.

6 | CONCLUSIONS

With this study, we open up the stage for research at the intersection of SBM research and DE. We shed light on how key SBM articles reflect DE principles by conducting an integrative literature review. Our findings present 23 SBM concepts mirroring DE. Among them, we identified seven abstract concepts and 16 concrete concepts.

With our study, we contribute to the following aspects: First, we introduce our Sustainable Business Model Framework for Doughnut Economics that enhances the theoretical understanding at the intersection of SBM and DE. This framework supports SBM scholars in reflecting their own work with regard to whether, to what extent and how it integrates the principles of DE. Moreover, SBM researchers can utilise the framework in order to enrich their future work.

Second, building on the first contribution, our study adds to SBM research by presenting seven unique avenues for shifting the SBM research agenda. These avenues aim to inspire future SBM research to further integrate the principles of DE. This can foster the development of innovative SBM concepts that contribute to broader sustainability transitions. Especially those principles that bear the potential for a more in-depth reflection in key SBM research can inspire novel business models. For example, with our findings, we would like to stimulate the exploration of growth agnostic and distributive SBMs that build on a cooperative view of human nature. Moreover, the proposed avenues encourage future studies to identify further abstract and concrete SBM concepts mirroring DE.

Third, our study contributes to SBM innovation in practice. The SBM concepts identified can inspire practitioners to integrate DE in their business model innovation processes. SBM innovations might foster the implementation of DE at the business model level in practice and foster broader sustainability transitions. Still, further research on concrete frameworks on how to integrate SBM is needed. The work of the doughnut economics action lab (DEAL) has recently published their Doughnut Design for Business tool, which provides great practical guidance for implementing DE at the business level.

ACKNOWLEDGMENTS

This research was supported by funds from the Excellence Strategy of the German Federal and State Governments, provided by Hamburg University through Transfer@UHH funds. Further support was provided by Heinrich-Böll-Stiftung. Open Access funding enabled and organized by Projekt DEAL. (open access agreement with Springer Nature).

CONFLICT OF INTEREST

The authors certify that they have no conflict of interest in the subject matter or materials discussed in this manuscript. We certify that the article is the authors' original work. The article has not received prior publication and is not under consideration for publication elsewhere. On behalf of all co-authors, the corresponding author shall bear full responsibility for the submission. This research has not been submitted for publication nor has it been published in whole or in part elsewhere. We attest to the fact that all authors listed on the title page have contributed significantly to the work, have read the manuscript, attest to the validity and legitimacy of the data and its interpretation and agree to its submission to *Business Strategy and the Environment Journal*.

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ENDNOTES

- ¹ Toronto and Remington (2020, p. 67) refer to such concepts as *themes*. However, we decided that the term *concepts* is more appropriate in our research context.
- ² These studies were not part of our sample as they did not belong to the 40 publications with the most significant influence among SBM research. According to our sampling strategy, we included the 30 most cited articles overall and 10 most cited articles in 2020 and 2021.

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How to cite this article: Hausdorf, M., & Timm, J.-M. (2023). Business research for sustainable development: How does sustainable business model research reflect doughnut economics? *Business Strategy and the Environment*, 32(6), 3398–3416. <https://doi.org/10.1002/bse.3307>