

Challenges and key success factors in sustainable business model innovation in SMEs:

A Systematic Literature Review

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Kurzfassung

Das Konzept der Nachhaltigkeit hat in den letzten Jahren zunehmend an Bedeutung gewonnen. Gerade (immer mehr) KMU wollen nachhaltige Geschäftsmodelle einführen, um ökologische und soziale Probleme anzugehen. Jedoch ist die Entwicklung und Einführung von nachhaltigen Geschäftsmodellen ein komplexer und anspruchsvoller Vorgang/Prozess, der erhebliche Änderungen an den bestehenden Geschäftspraktiken und einen Wandel der Unternehmenskultur erfordert. In der vorliegenden Arbeit werden die zentralen Herausforderungen und Erfolgsfaktoren bei der Entwicklung innovativer, nachhaltiger Geschäftsmodelle analysiert, wobei der Schwerpunkt auf der Identifikation von Hindernissen liegt, mit denen Unternehmen konfrontiert sind, sowie auf den Strategien, um diese zu überwinden. Als Methode wurde eine systematische Literaturrecherche verwendet, in deren Rahmen 12 Studien untersucht wurden, die die Einführung von nachhaltigen Geschäftsmodellen in KMU beschreiben. Der erste Teil der Arbeit gibt einen Überblick über den aktuellen Stand nachhaltiger Geschäftsmodelle, einschließlich einer Diskussion über die verschiedenen Arten nachhaltiger Geschäftsmodelle und die wichtigsten Anreize für deren Entwicklung. Im Rahmen dieser Arbeit werden die erzielten Ergebnisse analysiert, welche die Herausforderungen im Hinblick auf Rentabilität, mangelnde Unterstützung seitens des gegenwärtigen Systems, Wertekonformität sowie weiterer Barrieren bei der Umstellung von einem herkömmlichen Geschäftsmodell auf ein auf Nachhaltigkeit ausgerichtetes Modell beschreiben. Es wird ein besonderes Augenmerk auf Zusammenarbeit und Partnerschaften, Bildung sowie die Einbindung von Stakeholdern wie Kunden, Mitarbeitern und Lieferanten gelegt, die alle wesentliche Erfolgsfaktoren bei der Umstellung sind. Anschließend wird herausgearbeitet, wie Unternehmen mit diesen Gruppen auf sinnvolle Weise kooperieren, um sicherzustellen, dass ihre Bedürfnisse und Anliegen berücksichtigt werden. Im Schlussteil der Arbeit werden mögliche Lösungsansätze für die herausgearbeiteten Hindernisse sowie die Vorteile der ermittelten Erfolgsfaktoren diskutiert. Auch werden eventuelle Einschränkungen thematisiert, welche für zukünftige Forschung im Bereich nachhaltiger Geschäftsmodelle von Nutzen sein könnten.



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Abstract

The concept of sustainability has gained significant attention in recent years, with a growing number of SMEs looking to implement sustainable business models to address environmental and social issues. However, developing and implementing sustainable business models is complex and challenging, requiring significant changes to existing business practices and a shift in corporate culture. This thesis examines the key challenges and success factors associated with sustainable business model innovation, focusing on understanding the barriers that companies face and the strategies that can help overcome them. The methodology used is a systematic literature review through which research collected 12 studies describing the application of sustainable business models in SMEs. The first part of the thesis provides an overview of the current state of sustainable business models, including a discussion of the different types of sustainable business models and the key drivers of their development. The thesis analyzes the results that describe the challenges of profitability, lack of support from the broader system, values alignment, and other barriers during the transformation from a traditional business model to a model oriented to sustainability. Focus on collaboration and partnerships, education, and the involvement of stakeholders, such as customers, employees, and suppliers, is also discussed as a critical success factor, with a focus on the need for companies to engage with these groups in a meaningful way to ensure that their needs and concerns are taken into account. The thesis concludes with a discussion of potential solutions to these barriers and the benefits of discovered success factors, including the limitations that can help future research in sustainable innovation.



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Introduction

The business model, especially since the growth of e-commerce, has begun to play an increasingly important role for almost every company and organization. With much market competition and increasing customer demands, companies are forced to change and adapt their business model to remain competitive, [Holtström et al., 2019]. Although the concept of a business model can often vary, it can be described as "a conceptual tool containing a set of objects, concepts, and their relationship with the objective to express the business logic of a specific firm, what value is provided to customers how this is done, and with which financial consequences." [Osterwalder et al., 2005]. Considering the growing awareness of sustainable development, companies are trying to find a competitive advantage by adopting a sustainable business model innovation. A SBM, as defined by [Geissdoerfer et al., 2018], is a "business models that incorporate pro-active multi-stakeholder management, the creation of monetary and non-monetary value for a broad range of stakeholders, and holds a long-term perspective."

Many international institutions and world governments have included sustainability, as one of the critical elements of the future society, in their programs and projects [Smith and Tracey, 2016]. The limitations of the traditional business model, which focuses exclusively on profit generation, have been revealed. The potential for sustainable development is increasingly present and researched in the literature [Breuer et al., 2018]. Due to their influence, companies will play a key role in moving the world towards a more sustainable future. Since the effect of unsustainable practices is increasing, such as exploitative working practices and environmental destruction, there is a growing awareness of the need for sustainability [Raworth, 2004][Rockström et al., 2009].

1.1 Problem statement

Creating a business model that includes sustainability or simply switching from a traditional business model to a model oriented to sustainability can often be a complicated

and challenging process [Long et al., 2018] since that process includes a large number of variables that should be satisfactory for a large number of stakeholders. Previous research, such as [van Bommel, 2018], has identified several barriers companies generally face when innovating. While the research results provided empirical evidence that large companies are progressively working on sustainable strategies, several studies have shown that startups and SMEs lag when it comes to sustainable practices [Jansson et al., 2017][Chassé and Boiral, 2017][Schmidt et al., 2018].

Some scholars have contributed to understanding why SMEs face difficulties in implementing environmental and sustainable practices. Some of the problems include human and financial resources [Del Brío and Junquera, 2003][Santos, 2011], lack of understanding of the benefits and management capabilities [Hillary, 2004][Hsu et al., 2017], organizational culture and structure [Lepoutre and Heene, 2006][Johnson and Schaltegger, 2016].

In the earlier stages of company development, with the growth of entrepreneurial complexity, managers are usually faced with conflicting and sometimes paradoxical goals, contributing even more to the complexity of the business model modeling process [Lehoux et al., 2021]. One some well-known examples are company interest versus stakeholder, profit versus social impact, and economic returns versus environmental sustainability.

Companies decide on different sustainable business models. This often depends on their industry, the company's size, and other internal and external factors. Sustainable Business Model (SBM), as mentioned in the definition above, cover different aspects of business areas and stakeholders' interests. Other sustainable business models have been created and developed through business model innovation. Some include circular business models, social enterprises, hybrid enterprises, product-service systems-based models, and others [Geissdoerfer et al., 2018]. Table 2.1 shows a summary of the analyzed circular business models taxonomies done by [Urbinati et al., 2020], which shows the prevalence and growth of the development of different approaches to sustainable business models.

Generally, business models are composed of the following core elements, such as (1) Value proposition, (2) Value Creation and Value delivery, and (3) Value Capture [Zott et al., 2011]. The value proposition describes the assortment of services and products developed by a business with the aim of creating value for customers [Osterwalder et al., 2005] [Osterwalder et al., 2011]. Value creation and delivery are the main activities of an organization/business that sells a product or service [Schaltegger et al., 2016] [Boons and Lüdeke-Freund, 2013]. It is also related to routine management, commercialization and communication channels, obtaining resources, strategic partnerships, and using technologies [Osterwalder et al., 2011]. And value capture relates to the cost structures and revenue generated by a business [Schaltegger et al., 2016] [Osterwalder et al., 2005] [Bocken et al., 2014]. Nevertheless, in theory, and even less in practice, little is known about how different companies and organizations can produce sustainable and responsible products and services using some of the listed sustainable business models [Lehoux et al., 2021]. Also, little is known about their challenges and how they address them during the implementation of SBMs. Although research in responsive business innovation grows yearly, there are still not enough studies to explain how SBMs work in the real world

and what influences their success in the market, especially in markets where SMEs are involved [Boons and Lüdeke-Freund, 2013][Zott et al., 2011].

1.2 Research questions

As depicted in this introductory part, various factors influence the implementation of sustainable business models in SMEs. Some of them are more well-known, while some are less well-known. Existing shortcomings and lack of research related to the identification and implementation of sustainable business model challenges that companies face and strategies to address these challenges show the need for continuous research, whether in industry or academia. SMEs who want to embark on sustainable business development may find themselves in a challenging and complex situation.

Therefore, this work aims to deepen the understanding based on the current state of research and use cases found in the literature on the interplay of defined challenges and key success factors related to the implementation of sustainable business models in SMEs, as well as to identify possible gaps in research and future research directions. In order to meet this objective, research questions were defined:

- What barriers and challenges have SMEs experienced during sustainable business model innovation?
- What are the key success factors for implementing sustainable business models in SMEs?

In order to answer this question, the thesis is divided into four main parts. First, a theoretical background is presented, giving an overview of sustainable business models, their definitions, and related theories, sharpening the definition of Sustainable Business Model Innovation (SBMI), as well as describing their benefits and shortcomings. Second, the methodological approach and scientific background for the chosen methodology, Systematic Literature Review (SLR), are presented. The procedure and application required for SLR is explained and described in detail. Third, the findings and results are profoundly analyzed from statistical and substantive angles. The use cases used in the final analysis are briefly described with their unique solutions and strategies for the challenges encountered during the implementation of SBM. Finally, the summary, weaknesses, and limitations of the findings and used methods are presented, followed by a discussion, unveiling the research gap and possible further directions of research, and of course, feasible developments and improvements in the conclusion.



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Theoretical background

It can be said that a business model is an abstract representation that shows the value flow and all interactions between the main value elements of an organizational unit in a company [Nosratabadi et al., 2019]. As mentioned in the introductory part, the main components of the business model include value proposition, creation, delivery, and capture. All these elements are summarized by [Osterwalder and Pigneur, 2010] into the business model canvas. Shown in figure 2.1.

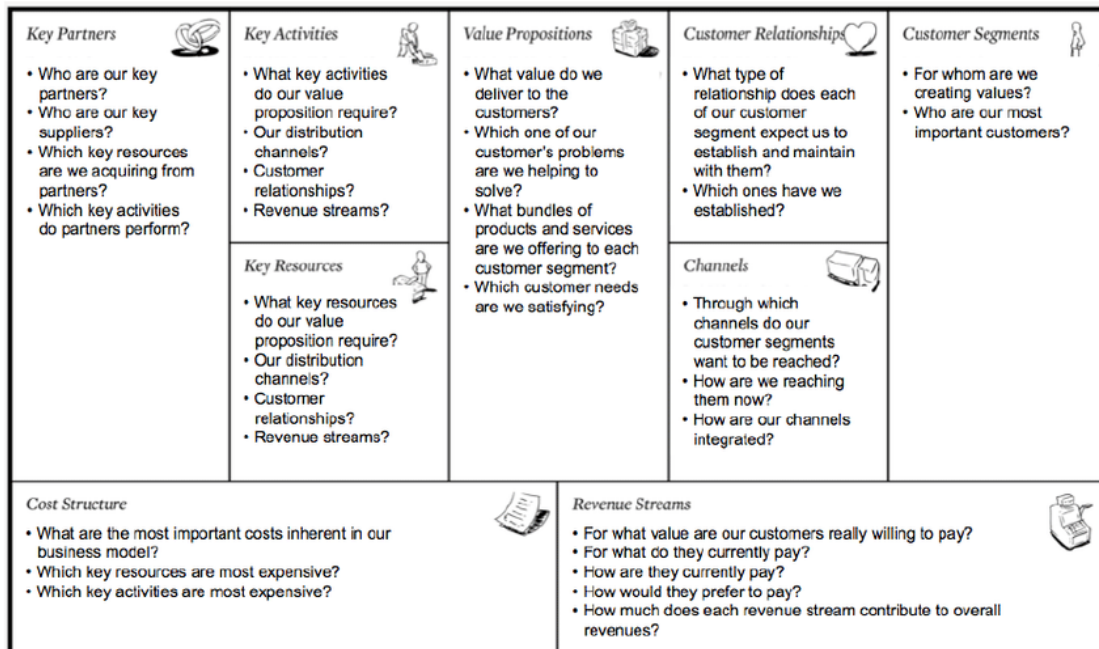


Figure 2.1: Business Model Canvas by [Osterwalder and Pigneur, 2010]

For any company to succeed in its operations, it is vital that the communication between these elements be successful [Chesbrough, 2010]. As mentioned, for this purpose, the idea and concept of the business model were developed to explain complex business ideas more simply and efficiently. Thus, through the business model, the flow of information, and workflow, it was possible to communicate more easily with stakeholders and investors in a shorter period [Osterwalder, 2004]. One of the main reasons why the business model as such became famous in its popularity is its effective representation of analysis, communication, planning, and implementation of complex organizational units [Magretta, 2002].

The rapid growth of information technologies in the last two decades has helped the development of business models. Since the nature of the market is such that it constantly changes over time with the different demands of customers, companies and their managers were forced to look for new ways of doing business and thus adapt their business model. Innovation is the key mechanism of company growth, and it was the innovation of the business model that played one of the important roles [Stubbs, 2019].

2.1 The rise of sustainability

For decades, some of the significant sustainable problems that affected social and environmental development, which involved people and nature, were not precisely the main topic of conversation or the priorities of most types of business models. However, in the last decade, various internal and external influences have pressured companies and turned them towards sustainable development. The urge to keep up with everything that sustainable development brings and internationalization created worldwide competition between companies. They had to find appropriate solutions in an increasingly large and complex environment. In the beginning, the alternative concept of sustainable business models brought a competitive advantage to the market [Schaltegger et al., 2016].

The results of empirical research have shown that company CEOs see sustainability as the essential element for long-term success. According to the study, they believe that sustainable problems related to social and environmental changes should be fully integrated into the company's operations and strategy [Laukkanen and Patala, 2014]. Sustainable business models have great potential to include the principles of sustainability and to integrate various sustainable goals into the main elements of the business model, already mentioned, value proposition, value creation, and delivery, and value capture of all activities performed by businesses [Boons and Lüdeke-Freund, 2013].

The literature characterizes and describes the development and ideation of new sustainable business models as SBMI. SBMI usually refers to a business model creation/transformation process that balances environmental, social, and economic aspects while mitigating as much as possible tensions between them [Davies and Chambers, 2018].

Through various research, scholars are increasingly investigating how a company or organization can be more sustainable [Adams et al., 2016][Lubberink et al., 2017]. There

are different approaches to sustainable innovation; they can be incremental, which means that the company introduces new technologies or improves some technological and operational processes, products, and business practices [Bos-Brouwers, 2010][Evans et al., 2017]. When it comes to transformative innovation, it includes a radical change, whether it is an approach to a problem, a radical redesign of a product, a new way of value creation, or the development of a new business model [Adams et al., 2016] [Evans et al., 2017]. Usually, most innovation related to sustainable development consists of incremental changes such as new processes and products [Hall and Wagner, 2012]. Different approaches and the concept of innovation cover different approaches to sustainability such as eco-innovation, sustainable technologies, green innovations, ecopreneurship, circular economy, product-service systems, the bottom of the pyramid approaches, closed-loop, social entrepreneurship, and social enterprises [Boons and Lüdeke-Freund, 2013] [Geissdoerfer et al., 2018]; however, most studies related to the research of such innovations focus on economic and environmental dimensions as outcomes of sustainable innovation [Bocken et al., 2014] [Lubberink et al., 2017]. According to [Adams et al., 2016], SBMI becomes "less of a technical challenge than is one of changing behavior.". Various researchers have provided different conceptual frameworks to classify SBMs, sometimes also called Business Model for Sustainability (BMfS), such as archetypes, ideal types, pattern typologies, as well as other forms of classification [Lüdeke-Freund et al., 2018]. Some of the most frequently used models will be described briefly in the subsections below.

2.1.1 Circular business model

Circular Economy (CE) emerged not so long ago as an alternative to the traditional way of doing business, aiming to promote and develop more sustainable production processes and the consumption and disposal of resources. CE, in most cases, represents an economic system that should be based on business models that should replace the classic "end-of-life" concept with recycling, alternatively reusing, recovering, and reducing materials in consumption, distribution, and production processes [Kirchherr et al., 2017].

Circular economy thinking can be synthesized through three main principles: optimize resource yields, preserve and enhance natural capital, and foster system effectiveness [Within, 2015]. These principles, used in some use cases of this research, were applied through remanufacturing, subsequently reusing, refurbishing, recycling, and more. A circular economy usually promotes various closed-loop patterns that are involved in the production, distribution, and consumption, in which components, materials, and products try to be reused or recycled at the end of their useful life, with the aim of not becoming classic waste [Su et al., 2013] [Geissdoerfer et al., 2017]. As mentioned, the goal is for the waste generated in that process to add value to the supply chain's stakeholders or those who benefit from it.

CE can operate at different levels in the company and supply chain, all the way to the end users. However, according to the research [Urbinati et al., 2020], the interaction between CE and business models has yielded only a few attempts to classify and create circular business models. For example, the study done by [Bocken et al., 2014] proposes

2. THEORETICAL BACKGROUND

a sustainable business model with archetypes that could correspond to the context that would fit into the CE context that describes the creation of value from the obtained waste during the process in the company. In research two years later [Bocken et al., 2016], they proposed a taxonomy of strategies related to business models with the aim of slowing, narrowing, and closing the resource loops in production, distribution, and consumption. In addition, [Ranta et al., 2018] develop in their research a conceptual framework whose purpose would be the analysis of business models in the context of the circular economy.

Moreover, [Lewandowski, 2016] expanded the conceptual framework of a Circular Business Model (CBM) that was based on the business model canvas proposed by [Osterwalder and Pigneur, 2010]. The framework included the principles of circularity in all elements of the canvas and additional elements of crucial importance for implementing the circular economy principles. Furthermore, a study done by [Witjes and Lozano, 2016] illustrated the CBM framework that, through collaboration, led to a reduction in the use of raw materials and waste generation. [Planing, 2015], develops a framework for business model innovation in a CE context that uses a combination of models with circular economy elements and elements that lead to more efficient use of resources. Table 2.1 summarizes the mentioned studies.

Reference	Circular business models' taxonomy
[Ranta et al., 2018]	Conceptual framework for business models in the circular economy context
[Bocken et al., 2014]	Archetypes of sustainable business models
[Bocken et al., 2016]	Taxonomy of business models strategies
[Lewandowski, 2016]	Conceptual framework of circular business model
[Witjes and Lozano, 2016]	Circular business model framework
[Planing, 2015]	Framework of business model innovation in a circular economy
[Pezzotta et al., 2018]	Product-service systems-based business models

Table 2.1: Summary of circular business models' taxonomies done by [Urbinati et al., 2020]

Empirical investigations and results about how circular economy principles were created and implemented through innovative business models are limited when talking about SMEs and start-ups [Henry et al., 2020]. These results don't help the development of CE since circular principles usually need an entrepreneurial and innovative spirit to become a reality [Zucchella et al., 2019]. According to research [Sassanelli et al., 2019], CE is one of the main drivers in the sustainable manufacturing sector. The transformation, according to the circular business model, is usually very demanding and includes a large number of changes that companies must successfully implement during the transformation. Few, if any, manage to integrate and fulfill all CE requirements [Frishammar and Parida, 2019]. [Lewandowski, 2016] states that it is more correct to talk about circular(ness) than the complete integration of circularity. Every business model, to some extent, is both circular and linear.

2.1.2 Hybrid business model

Hybrid organizations or companies design business models mainly based on trying to solve a particular environmental or social problem [Haigh et al., 2015]. They often generate profit differently, combining nonprofit and for-profit models. Various researchers have identified Social Enterprise (SE) as hybrid organizations, continuously operating between different logics (commercial logic on one side and charity logic on the other), between which conflicts can occur and thus often create hybrid tensions [Battilana and Lee, 2014] [Jay, 2013] [Tracey et al., 2011]. In addition, social enterprises are independent and usually use participatory management models, and in case financial surpluses are created, they're primarily reinvested in some societal objectives [soc,].

The ability of the company to create a business that is focused on the mission and is also financially stable from a vital connection for survival since there are many cases when hybrids have strayed from their mission through various leadership changes, acquisitions, or due to adaptation to the moves of the competition that had a business model exclusively oriented towards profit [O'Toole and Vogel, 2011]. Although they often operate in niche markets, some hybrid organizations are also represented in mainstream markets, which sometimes makes them attractive for cooperation or acquisition by other companies based on traditional business models [Haigh and Hoffman, 2011].

Research done by [Ebrahim et al., 2014] and [Battilana et al., 2012] addresses the issue many social enterprises face during their societal and commercial value creation. Both papers identified two types of hybrid businesses through their research. The first are integrated hybrids; in this way, environmental and social impact is most often served through activities that would fall into the same category as economic value creation. Another type is differentiated hybrids, in which case the activities of value creation in the areas of social and environmental impact require additional actions by the company in addition to those activities that include economic value creation. The second mentioned type is often represented in cases when SE beneficiaries differ from SE customers [Santos et al., 2015]. As a frequently suggested solution, "structural separation" is proposed. In this case, activities are divided into sub-units to avoid tension [Battilana et al., 2012] [Mason and Doherty, 2016].

Usually, the need to satisfy many external stakeholders can cause tensions that can affect the entire business model of the organization [Lumpkin et al., 2013] [Mason and Doherty, 2016]. However, adequate response to stakeholder requirements is associated with strategic success [Battilana and Dorado, 2010] [Brown and Iverson, 2004]. In this way, stakeholders play a significant role in directing managerial leadership, which can lead to the creation or reduction of tensions between commercial and social goals [Teasdale, 2012]. There needs to be more research in the area of managing conflicting demands [Davies and Doherty, 2019], so one of the goals of this research is to contribute to the understanding of this issue and how to deal with it.

2.1.3 B Corp model

B Corps are defined as a standard profit-oriented business that is certified by the Not-For-Profit (NFP) organization, B Lab, with the purpose of meeting rigorous goals and standards related to social and environmental performance, transparency, and accountability [Cheng et al., 2017]. According to B Lab, the goal of B Corps is to use the power of business to solve environmental and social problems [Stubbs, 2017a].

Although B Corps share many similarities with different types of hybrid companies, they're not a legal form, but they're certified by a non-profit organization (B Lab), as mentioned above. In order for a company to receive a certificate and become a B Corp, it must fulfill most of the conditions with an impact assessment, which usually assesses the overall impact of a specific company on its stakeholders, taking into account different categories related to the company's operations, environmental and social implications, processes within the company, etc. [Stubbs, 2017b].

Sample questions¹ as an example of a B Corp impact assessment:

- **Governance:** What portion of your management is evaluated in writing on their performance with regard to corporate, social, and environmental targets?
- **Workers:** What percentage of the company is owned by full-time workers (excluding founders/executives)?
- **Community:** What percentage of management is from underrepresented populations? (This includes women, minority/previously excluded populations, people with disabilities, and/or people living in low-income communities.)
- **Environment:** Does your company monitor and record its universal waste production?
- **Customers:** How do you verify that your product improves the impact of your client organizations?

In order to receive the certificate, the company must collect at least 80 points out of a maximum of 200 during the assessment process. Assessment is done every two years again, and companies are randomly checked during that period [bl,]. According to data from the official website of B Lab (<https://www.bcorporation.net>), the first B Corp was registered in 2007 in the USA., and by 2016, in 47 countries and 130 industries, 1,600 B Corps were registered.

According to [Hiller, 2013], a partial reason for the growth in popularity of the B Corp model is the recent global financial crisis as well as the low level of trust in the operation of corporations. Also, the desire of entrepreneurs to be less dependent on subsidies and donations [Battilana et al., 2012] had an impact. There is an increased interest of

¹<https://www.bcorporation.net>

scholars in organizations such as B Corps, and it is essential to understand how these organizations combine different logics (commercial and social) in order to learn how to deal more efficiently with all the issues that sustainability brings with it [Battilana and Lee, 2014].

2.1.4 Other sustainable business models

Business Model for Sustainability (BMfS) cover a wide range of models, which are not formed as a whole. Still, they contain elements of sustainability that aim to provide services and products that indirectly or directly reduce pressure on the environment and society while generating profit equal to or higher compared to the traditional business model [Bocken and Short, 2016] [Bohnsack et al., 2014] [Chun and Lee, 2013].

Initial discussions on the topic of BMfS mainly focused on the added value of the company's sustainability, which could be achieved by altering and/or examining the company's fundamentals [Stubbs and Cocklin, 2008]. Earlier approaches mainly aimed to influence external stakeholders but also the broader social and economic environment, such as redesigning plans to be less focused on short-term financial goals or encouraging reforms in the field of energy and transport [Stubbs and Cocklin, 2008]. Contributions that arrived later focused more on specific elements, characteristics, and forms of BMfS. For example, the inclusion of social and environmental values in the value proposition [Boons and Lüdeke-Freund, 2013] would be discussed, or more attention would be given to the supply chain that would focus more on sustainability; companies taking responsibility for their actions; greater focus would be placed on the relationship with users [Blok et al., 2015] [Boons and Lüdeke-Freund, 2013]. Scholars are constantly working on steps leading to a better categorization of BMfS, thus facilitating their understanding and improvement.

For companies, in order to be able to deliver value to end users continuously but also to remain competitive in the market, their business models were increasingly occupied with expanding what the product offers, which also includes various services, so-called integrated Product-Service Systems (PSS) [Durugbo, 2013] [Tukker and Tischner, 2006]. PSS develop the potential to contribute to the sustainability of the company at the same time and improve the competitive situation in the market [Tukker and Tischner, 2006]. With the implementation of PSS come various advantages but also constraints. A study done by [Armstrong et al., 2015] worked on identifying customers' perception of PSSs on clothing products. The results showed both benefits and barriers. Financial problems have established themselves on the positive side, with the product lifecycle extension, reusability, and reduction in clothing purchases. Regarding barriers, trust turned out to be the most prominent aspect that needed to be worked on due to the lack of transparency in the entire process of value creation and delivery.

Scholars in the "Innovation Management" research organizations whose goal is to address global problems/concerns that vary from climate change to internal innovation in the company. In this landscape of shifting innovation, Responsible Research and Innovation

(RRI) developed itself and received more attention [Owen et al., 2013] [Stilgoe et al., 2020]. Although RRI tries to direct innovations toward the betterment of the world, it seeks more vigorous activities toward social and environmental value creation [Genus and Stirling, 2018]. As is the case with most other models, managing a new business model brings with it challenges, especially for innovation-oriented companies that are actively working on changing their value proposition and ways of doing business in the established market [Chesbrough and Rosenbloom, 2002] [Lehoux et al., 2014] [Zott et al., 2011].

Furthermore, a brief overview of the Lean Business Model Canvas (LBMC), since one of the use-cases in the research uses that model to implement sustainable values. Developed by [Maurya, 2012], LBMC extends and adapts the traditional business model canvas [Osterwalder et al., 2011] and focuses on problems, solutions, and key metrics to adapt to the early stages of startups, and small companies [Pornparnomchai and Rajchamaha, 2021]. The model addresses four main problems that include key resources, key activities, key partners and customer relationships, promoting sustainable values and can be used as SBM [Pornparnomchai and Rajchamaha, 2021].

2.2 Challenges and strategies

When companies and organizations fail in the process of change/innovation, it can cause negative consequences for the environment and society [Calabrese et al., 2019]. The truth that we find difficult to accept is that many companies have failed in this process. Whether it is a response to the climate changes that are happening [Finke et al., 2016], up to the inclusion of circular economy principles in company strategies, the transition towards sustainability is a challenging task [Veleva and Bodkin, 2018].

Sustainable business models are undoubtedly complex and require coordination between different stakeholder requirements [Evans et al., 2017] and simultaneous attention to sustainable values [Gao and Bansal, 2013]. Economic, social, and environmental elements of SBM are inextricably linked and internally dependent on each other [Bansal, 2002]. Because of this, SBMs usually include various paradoxical tensions, such as profit vs. ethics, shareholder vs. stakeholder, long-term vs. short-term [Smith and Lewis, 2011] defined them as contradictory elements that are interconnected, exist simultaneously, and remain there as time passes. For the success of SBMs to be successful, it is essential to cope with tensions, but the way to do it remains less known [Smith and Lewis, 2011].

Corporate research in sustainability focuses on instrumental strategies for solving problems. These strategies usually look for trade-offs between social, economic, and environmental goals or try to direct goals towards "win-win" situations [Van der Byl and Slawinski, 2015]. In both cases, the resulting tensions between conflicting goals are most often ignored. Another strategy for resolving tensions takes into account the integrative approach, which recognizes tensions and embraces contradictions between them and seeks a solution that would take into account all interconnected elements [Gao and Bansal, 2013]. Instead of ignoring and dismissing tensions and challenges, this strategy adopts paradoxical thinking. That is, it treats tensions in a way that pursues and/both approach, which

actively engages in competing demands simultaneously, instead of treating challenges and tensions in an or/, either way, [Lewis et al., 2014].

Regardless of the existence of various SBMs, they all try to find a way to integrate sustainable values (environmental integrity, economic prosperity, and social equity) and place them before profit [Schaltegger et al., 2016]. The aforementioned integration is the most challenging part because numerous tensions arise during that process. Table 2.2 shows the categorized tensions based on [van Bommel, 2018].

Tension	Description
Performing	Tensions emerging from a multiplicity of stakeholders and goals
Belonging/Identity	Tensions emerging from individual and collective conflicts around identity and value
Organizing	Tensions emerging from internal dynamics (culture, structure, leadership)
Learning/Temporal	Tensions emerging from multiple time horizons as growth, change and flexibility are pursued.

Table 2.2: Paradoxical tensions around sustainability [van Bommel, 2018].

Performing tension can occur through competing goals and strategies that arise between stakeholders. They can happen at different internal and external levels, from the customer to the organizational structure. Collective and individual identity issues can create belonging tensions [Smith and Lewis, 2011]. Usually, within the company, there are opposite but stable values and roles that create a conflict between other(s) versus self. Organizing or change tensions come to the fore when the environmental /social goals combine with the requirements of the business model, which causes competition within organizational structures, practices, processes, and cultures [Smith and Lewis, 2011]. The mentioned tension refers to learning or temporal tensions. These tensions arise while pursuing more time horizons, such as change, growth, and flexibility [Smith and Lewis, 2011].



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Methodological Approach: Systematic Literature Review

The aim of this work is the analysis the state of research in the field of sustainable business models and their implementation, which includes the recognition of sustainable models, SMEs that tried to implement some SBM, the problems they encountered, and what factors helped them to solve the problems. Further research gaps and directions should be identified next to the summary and discussion of the systematic literature review results. In the literature, studies and use cases investigated the application of SBMs to individual companies and several companies in a particular industry or territory. This literature analysis considers all this research, regardless of the industry, country, or stage of development of the company, as long as it meets the criteria set in the review protocol.

In order to fulfill the goal of this thesis, a systematic literature review has been chosen; this methodical approach is characterized by structured, repeatable, and documented work. A Systematic Literature Review (SLR), sometimes called a systematic review, is the process of identifying, evaluating, and processing all available scientific research on a particular research question, phenomenon, or topic. SLR belongs to the form of secondary study as it reviews primary studies, which are usually individual research papers [Keele et al., 2007].

As mentioned, reviews of research literature are done for different purposes. Still, there are several reviews, the most prominent being the traditional or narrative literature review and the already mentioned systematic literature review. The traditional literature review usually critiques and summarizes a whole body of literature and draws conclusions about the topic in question [Cronin et al., 2008]. The primary purpose of this type of review is to provide the reader with a broad background of understanding current knowledge and to emphasize the importance of new research that still needs to be done.

In contrast to traditional review, a systematic literature review uses a more strict and well-defined approach to research in a particular field. The advantages of SLR, according to [Keele et al., 2007], are that a systematic approach and methodology reduce the likelihood that literature selection will be subtly biased. Also, if the results of the research provide consistent data, it provides evidence that the topic or methodology is transferable and robust. And if the results are not uniform, the sources of variation can be further explored. One of the main disadvantages of SLR is that researchers need more time compared to the traditional literature review, and therefore it is considered time-consuming.

[Hart, 1999] gives four reasons why a literature review should be part of any thesis:

- It helps the student to gain an understanding of the topic that interests him.
- Represents a testament to the student's quality approach to research.
- It justifies future research in a particular field and the need for a thesis.
- It helps the student to enter the world of scholarly tradition and etiquette.

A systematic literature review includes various activities that should be followed for the review process to be valid. Guidelines for systematic review may differ in different fields and industries, but most have common characteristics and can be applied universally.

3.1 The need for systematic literature review

As mentioned in the previous chapter, a systematic literature review is a thorough and structured process of research and literature collection that should be well documented so that the process can be replicated. Such an approach to research requires more time and resources when it comes to more extensive studies. Therefore, there must be a justified reason for a SLR. This chapter will provide insight and explain the need for a SLR in response to the scholar's call for research in the field of sustainable business models and their implementation process.

Although sustainable business models are not entirely new, there is a lack of empirical research on how to implement them and manage conflicts. Implementing a new business model can be a complex challenge for companies [Cullen and De Angelis, 2021]; in his research on circular entrepreneurship, the author concludes that very little is known about such companies and their social and environmental outcomes. While the research results provided empirical evidence that large companies are progressively working on their sustainable strategies, several studies have shown that startups, Small and Medium-sized Enterprises (SMEs) lag behind when it comes to sustainable practices [Jansson et al., 2017] [Chassé and Boiral, 2017] [Schmidt et al., 2018] and [Battistella et al., 2018] calls for more focus to be placed on SMEs research when it comes to the implementation of

sustainable business models. Although a lot of valuable results can be found in classic studies, [Corral-Marfil et al., 2021] talks about the importance of using use cases as a source of information since they give a realistic view of the actual situation within the company and the way companies deal with the challenges of implementing SBMs.

When it comes to the challenges and barriers that companies face [Geissdoerfer et al., 2018] mention that this process is "largely enchanted." The process through which companies develop their business model and adapt over time is not fully clarified [Ritter and Lettl, 2018]. Also, a sustainable business model is rarely viewed from a multilevel perspective [Kraus et al., 2020]; therefore, researching several different uses can give a more thoughtful picture and perspective on the mentioned issue. [Rozentale and van Baalen, 2021] mentions that there are no studies that explain how companies can actually deal with all the tensions and challenges they face when establishing a new business model, not only at the organizational level but also at the managerial level [Davies and Doherty, 2019].

3.2 Review protocol design

As described in previous chapters, a systematic literature review follows a structured and documented step-by-step procedure with different stages. As suggested in several guidelines [Keele et al., 2007], this research applies a clear review protocol and strategy to ensure comprehensive, consequent, reproducible documentation and results of the SLR. The study follows the instructions given by the [Keele et al., 2007] and [Xiao and Watson, 2019] versions of the specific steps. A detailed view of all steps is shown in figure 3.1. Furthermore, the research applies specific steps and approaches. Also, it draws inspiration from other related systematic literature review works such as [Okoli, 2015] [Okoli and Schabram, 2010].

As can be seen from Figure 3.1, specifying research questions is the first and most crucial step; several different guidelines for conducting a systematic literature review emphasize this [Xiao and Watson, 2019] [Kitchenham, 2004] [Brereton et al., 2007]. Research questions help define data that should be extracted from primary studies, and they're part of a protocol that should not be changed once it is accepted. The most important lessons [Brereton et al., 2007] learned during the planning phase are that reviewers can expect that their research questions will be modified during protocol development as they become more relevant and understanding of the problem increases. They also indicate that pre-review mapping studies can help scope research questions. As mentioned, the protocol provides a detailed plan for conducting the review. It covers all the details that should be used in the second phase, including inclusion and exclusion criteria. If more than one person is involved, each person should be involved in creating the protocol. Piloting the protocol and its modification is of great importance; once the validation of the review protocol is correct and complete, the review protocol should no longer be changed. The review protocol can be found in section 6.1 at the end of the document.

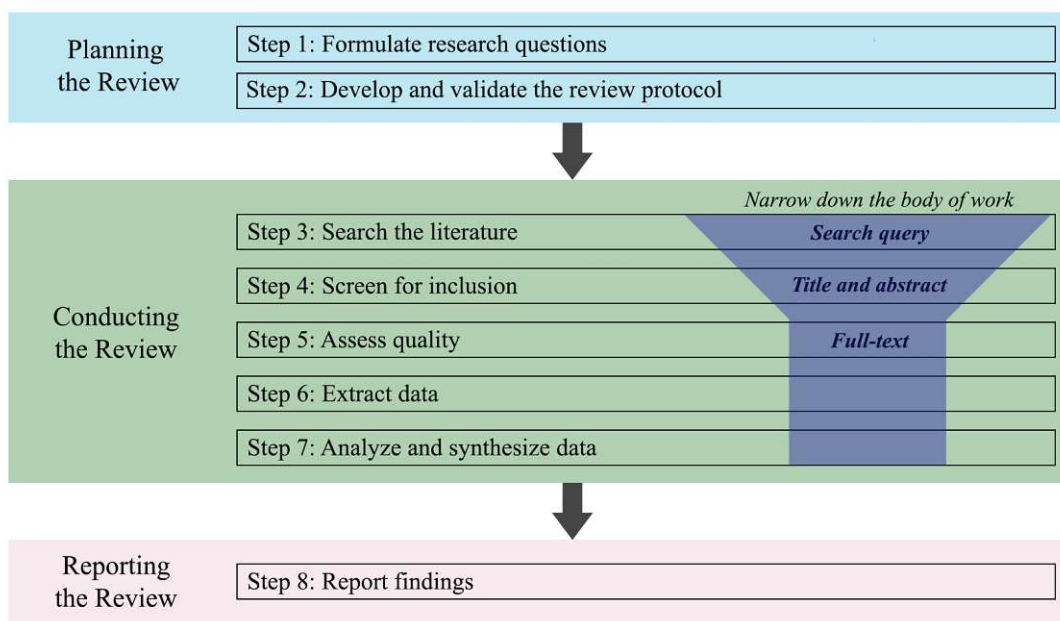


Figure 3.1: Process and steps of a systematic literature review

3.3 Application of an SLR

Following the procedure shown in the section 3.2, the initial search strategy was defined and created with selection criteria to reduce the literature review’s scope to a manageable level. This includes the definition of basic terms, search approaches, and relevant sources for literature collection. In the following, the inclusion/exclusion criteria will be defined with information more related to the scope of the research. In contrast, after that, more detailed characteristics will be defined, which includes more qualitative aspects when selecting primary studies for the final analysis.

3.3.1 Inclusion/Exclusion criteria

To collect the primary studies, Thomson Reuters Web-of-Science (WoS)¹ and Elsevier Scopus² electronic databases were selected. They contain millions of scientific articles in areas that are relevant to the scope of this research. The timeframe taken into account includes the period between 2005 and 2022. According to research by [Nosratabadi et al., 2019], more significant discussion of SBMs in the research began only in the early 2000s. Therefore it would not make much sense, taking into account the development and advancement of technology, to look for primary studies before that period.

¹<https://www.webofscience.com>

²<https://www.scopus.com>

General criteria:**Electronic databases:** Elsevier Scopus and Web-of-Science**Timeframe of publication:** 2005-2022**Language of publication:** English**Document type:** Research articles, Journals and Books**Amount of text required:** full text required

The keywords used in the search query were defined from the research questions and purpose definition. The list of all keywords can be found in table 6.1. Keywords and search terms used in Doc Title, Abstract, and Keyword: A AND B AND C (exhaustive list of combinations of keywords from each group)

A	B	C
"sustainable business model"	innovation*	"case stud*"
"business model* for sustainability"	application*	case*
"business model" AND sustainab*	transform*	"use-case*"
"business modelling" AND sustainab*	adapt*	example*
"business model design" AND sustainab*	implement*	
"business model" AND "sustainable development"	integrati*	
	apply*	

Table 3.1: Table of keywords used for search queries against electronic databases (A AND B AND C).

Initially, it was thought to create a list of exclusion keywords, but in the test research, it was shown that this is unnecessary. In order to limit the areas and disciplines of primary studies, a list of relevant research categories was created and defined for both electronic databases. With this, we wanted to exclude studies in areas that have no contact points with the research area. A list of relevant categories can be found in tables table 6.2 and table 6.3.

Agricultural and Biological Sciences (AGRI)	Business, Management, and Accounting (BUSI)
Chemical Engineering (CENG)	Materials Science (MATE)
Computer Science (COMP)	Decision Sciences (DECI)
Earth and Planetary Sciences (EART)	Environmental Science (ENVI)
Energy (ENER)	Economics, Econometrics and Finance (ECON)
Engineering (ENGI)	Social Sciences (SOCI)

Table 3.2: Relevant research categories – Scopus

By combining all the mentioned criteria, a search query was created for both electronic databases according to the search engines' specific characteristics. Search queries used

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Agriculture, Multidisciplinary	Environmental Studies
Automation & Control Systems	Green & Sustainable Science & Technology
Biodiversity Conservation	Industrial Relations & Labor
Business (all)	Management
Chemistry, Multidisciplinary	Material Science (all)
Computer Science (all)	Mining & Mineral Processing
Ecology	Nanoscience & Nanotechnology
Economics	Polymer Science
Education & Educational Research	Public, Environmental & Occupational Health
Energy & Fuels	Social Issues

Table 3.3: Relevant research categories – WoS

in the research can be found in section 6.4 and section 6.3 at the end of the document. The search was done directly on the web interface, and it was conducted on 26.04.2022. The first results gave a total of 1,968 primary studies, of which Scopus yielded the most considerable portion, with 1,486 results, while WoS gave 482 document results. Graphically shown in the figure 3.2.

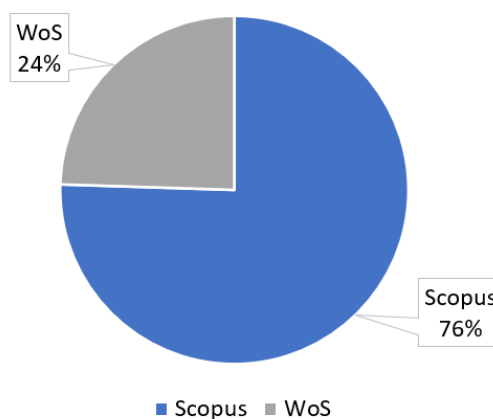


Figure 3.2: The results of the first literature collection

The citation and reference management software Mendeley Reference Manager³ was used for more straightforward navigation and management of primary studies. After the initial search, duplicates were removed. A manual review of titles, abstracts, and conclusions was done, following the list of questions defined in the review protocol, to reduce the number of primary studies for full-text screening.

List of questions that were taken into account for the selection of primary studies that will be included in the full-text review (Judgement during screening):

³<https://www.mendeley.com>

- Is the implementation of a sustainable business model described in the use case?
- Does the use-case describe the implementation of a sustainable business model at SMEs?
- Was the issue of implementation and how to solve it mentioned?

After this step, a total of 33 studies were selected for full-text screening, of which 24 documents were from Scopus and nine were from the WoS electronic database.

3.3.2 Data Extraction and Data Syntesis

As mentioned, 33 studies were selected for full-text screening. They were downloaded locally in order to perform a detailed analysis, find answers to research questions and check the quality of the studies. After full-text screening and checking whether the studies met the criteria, in the end, 12 studies met the conditions and were selected for data extraction. The final list of 12 studies can be found in table 6.6. Other studies did not enter the final list of studies for various reasons. Three studies did not meet the conditions due to the size of the company, i.e., the investigated companies did not belong to SMEs. Other excluded studies, most often, had a problem with the lack of quality and incomplete answers that would answer the research questions.

Following the instructions given in [Keele et al., 2007][Xiao and Watson, 2019] and adapting the template found in the same studies, a template for data extraction in the review protocol was created. This template is used for data extraction and can be found in section 6.1. Adaptation was necessary after it was seen what data the selected study contained.

The data obtained from the list of final studies were extracted into an excel file. A summary of the obtained data can be found in table 3.5. While a detailed presentation of all extracted information can be shown in section 6.2. The following information is provided for each study:

- Case ID
- Single or multi-case study
- Research design
- Data source
- Year of data collection
- Field/Industry sector
- Number of investigated companies

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ID	Title	Author(s)	Publisher	Journal	Document type	Year of publication	Language
C01	Strategies, practices, and tensions in managing business model innovation for sustainability: The case of an Australian Bcorp	Wendy Stubbs	Wiley Online Library	Corporate Social Responsibility and Environmental Management	Journal Article	2019	English
C02	Business models' innovations to overcome hybridity-related tensions in sustainable entrepreneurship	Daniele E. Matzenbacher et al.	MDDPI	Sustainability (Switzerland)	Journal Article	2020	English
C03	Business model development for sustainable apparel consumption: The case of Houdini Sportswear	Holström, J. Bjellerup et al.	Emerald Publishing Limited	Journal of Strategy and Management	Journal Article	2019	English
C04	Critical success factors for the transition to business models for sustainability in the food and beverage industry in the Netherlands	Thomas B. Longa et al.	Elsevier	Journal of Cleaner Production	Journal Article	2018	English
C05	Sustainable Business Models of SMEs: Challenges in Yacht Tourism Sector	Cinzia Battistella et al.	MDDPI	Sustainability (Switzerland)	Journal Article	2018	English
C06	Circular business models in the European manufacturing industry: A multiple case study analysis	Andrea Urbinati et al.	Elsevier	Journal of Cleaner Production	Journal Article	2020	English
C07	Recycling technology innovation as a source of competitive advantage: The sustainable and circular business model of a bicentennial company	José A. Corral-Marfil et al.	MDDPI	Sustainability (Switzerland)	Journal Article	2021	English
C08	Crafting business models for conflicting goals: Lessons from creative service firms	Ieva Rozentale et al.	Elsevier	Long Range Planning	Journal Article	2021	English
C09	Moving toward responsible value creation: Business model challenges faced by organizations producing responsible health innovations	Pascal Lehoux et al.	Wiley Online Library	Journal of Product Innovation Management	Journal Article	2021	English
C10	Sharing knowledge on the sustainable business model: An aquaculture start-up case in Thailand	Montiean Pompanomchai et al.	Taylor & Francis	Cogent Business and Management	Journal Article	2021	English
C11	Circular entrepreneurship: A business model perspective	Ufuk A. Cullen et al.	Elsevier	Resources, Conservation and Recycling	Journal Article	2021	English
C12	Balancing a Hybrid Business Model: The Search for Equilibrium at Cafédirect	Iain A Davies et al.	Springer	Journal of Business Ethics	Journal Article	2019	English

Table 3.4: Final list of studies

- Size of the company
- Country
- Sustainable focus (Social, Environmental, Economical)
- Model or framework used for the SBMI
- Is the model already known?
- How long did the implementation process take?
- Was the process successful?
- List of challenges during SBMI
- How are they addressed?
- List of key success factors

Case ID	Single/Multi Case Study	Year of data collection	Field/Industry sector	No. of companies	Size of the company	Sustainable Focus	Model or Framework used for SBMI
C01	Single	2016	Banking and Finance	1	SME	Social and Economic	BCorp
C02	Multi	2018-2019	Hotel, Food Sector, Recycle	12	SEs	Social	Hybrid Model
C03	Single	2017	Apparel and Fashion	1	SME	Social and Environmental	PSS
C04	Multi	2016	Food and Beverage	14	SME (6) + Startup (8)	All three	BMFS
C05	Multi	2017-2018	Tourism	7	SEs	All three	TBL
C06	Multi	2019-2022	Manufacturing	3	SME	Environmental	Circular BM
C07	Single	2020	Manufacturing	1	SME	Environmental	Circular BM
C08	Multi	2018	Service	16	SME	Social	BMFS
C09	Multi	2017-2018	Health	16	SME	Social	RRI
C10	Single	2020	Aquaculture	1	Startup	Environmental	LBMC
C11	Single	2019	Beverages	1	Startup	Environmental	Circular BM
C12	Single	2000-2017	Beverages	1	SME	Social and Environmental	Hybrid Model

Table 3.5: A brief summary of extracted data

Each of the listed studies had to contain data on key success factors, challenges, and barriers when it comes to the implementation of sustainable business models. Most studies used a different approach when creating use cases and often used other procedures and frameworks when summarizing findings. The challenge was to present information from different studies with different methods in a unified way that would make sense and provide an excellent basis for further analysis of the results. Research done by [Long et al., 2018] [van Bommel, 2018] contributed to understanding this undertaking since they experienced similar challenges. Their approaches were adapted to meet the required conditions for creating a framework encompassing the results. Initially, a table containing key success factors was created, and for each factor, the number of mentions in the studies was listed. After that, a table with the challenges companies has encountered when implementing sustainable business models, which mentions the most demanding

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challenges and the number of them was listed. Also, a template was developed that considered the company's internal tensions that occur during the implementation of sustainable business models.

The idea of taking internal tensions into account was adapted from [van Bommel, 2018], as it provides a different perspective on the issues faced by SMEs. With this approach, a basis was created for documenting the findings that would facilitate the analysis of the results. In order to expand and complete the picture that would give and facilitate the answering of research questions, value proposition, value creation, value delivery, and value capture were also taken into account. Generally, business models are composed of these core elements [Zott et al., 2011]. For each of the final studies, an attempt was made to answer which of the three mentioned elements the company paid the most attention to. In the results (chapter 4), access to individual parts of the extracted data and how they're synthesized is described in much more detail.

Results of the Systematic Literature Review

The results of the conducted systematic literature review are summarized in the following. SLR included several steps to ensure quality and reduce the number of studies for processing. This included creating a search query, manually browsing the titles and abstracts of the studies, and finally, a full-text review of the selected studies. First, the structural overview is presented; also, each study will be briefly described. After that, content analysis will show a summary of evidence and an attempt to explain the findings.

4.1 Structural analysis of the final set of literature

As mentioned in the previous chapter, 12 studies were selected for the final analysis, which can be found in table 6.6. The table contains data on the title, author, publisher, journal, type of document, year of publication, and language. In the following, the distribution of the papers and their properties along several categories is presented. When it comes to the publication type, all selected papers are articles. In terms of the publication period, all selected papers were published between 2018 and 2021, while most selected studies were from 2021. All studies conducted research on SMEs and how companies applied SBMI, including descriptions of SBM, factors that helped in the transformation, and challenges that hindered this transformation. Out of 12 studies, half of them described only one company, while the other six included several companies in their research. The total number of companies that were subjected to research is 74. The most significant number of analyzed companies is located in Europe, 52 of them. Details can be seen in figure 4.1. The studies were carried out in Australia, Brazil, Canada, Denmark, Estonia, Finland, Latvia, Lithuania, Sweden, Netherlands, Italy, Spain, Portugal, Albania, the UK, and Thailand, and one study for the sake of anonymity listed only Europe as the continent where three companies were analyzed.

4. RESULTS OF THE SYSTEMATIC LITERATURE REVIEW

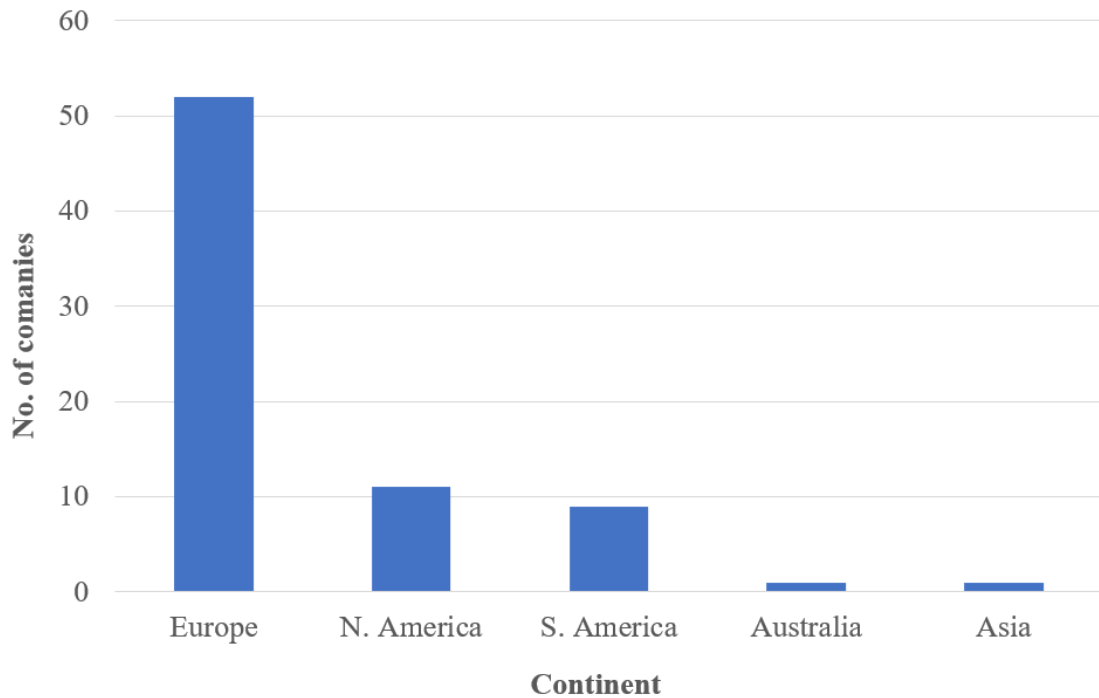


Figure 4.1: Number of investigated SMEs by continent.

Most publications covered the food sector (4 out of 12), followed by manufacturing, service, recycling, banking and finance, aquaculture, tourism, health, apparel, and fashion.

4.1.1 Case description

Each selected study offered valuable information for answering the research questions. In order to more easily understand the context, environment, and conditions and get a better picture of the selected studies, below, each study from the final set of literature will be briefly summarized. The ID for each study can be found in table 6.6.

C01 provides new insights into sustainable innovation through the lens of business model innovation for sustainability. It presents a case study of a relatively underexplored business model for sustainability, the B Corp model. The model is described earlier in the subsection 2.1.3. This article examines the structure, strategy, and practices of a B Corp in Australia's banking and finance sector and the tensions in reconciling economic, social, and environmental imperatives. The study found that the B Corp focuses on the social and economic aspects, with ecological performance only recently being addressed in response to its poor performance on the environmental categories in the B Corp certification process. The social and economic elements are firmly integrated with some recruitment and marketing practices, for example. However, balancing these two has created tensions and conflict in other areas like performance measurement,

ownership structure, sales, and product design. It is a qualitative research that collected data through semi-structured interviews and secondary data sources such as websites, magazines, and financial reports. It has been stated several times that the implementation of this model is an ongoing process and that its success is only partial. One of the most demanding challenges the company has faced involves profit and impact. They also faced the challenge of measuring the transition from a traditional business model to a model oriented to sustainability. The researchers point out that there were also challenges with value alignment. The company improved the recruiting process, collaboration, and partnerships and did additional certificates to cope with the transformation challenges. These and several smaller steps proved to be key success factors for the company.

C02 focuses on hybridity-related tensions to achieve environmental, social, and financial goals. A case study was conducted on 12 organizations in seven countries from 2018 to 2019 through observation visits, semi-structured interviews, and secondary data collection. The results showed that organizations engage various stakeholders in developing emotions related to sustainable behaviors. They use the idea of community to promote it, fostering the sharing of intangible values as a primary objective. From this, they all have a socially sustainable focus. Associated with these actions, organizations offer more convenience accessing these products or services, home deliveries, and promoting consumers' education. It turned out that companies ran the business while fostering a social movement. In their engagement in sustainability discussions, practical activities, and forums, companies bring together consumers, suppliers, and other agents outside their vertical supply chain. Applying the hybrid business model (described in subsection 2.1.2), it was stated that the transformation process was successful. However, the process can be further expanded and thus be present in the company's daily operations. Operations of all listed companies are internet-based. It stated that social media and transparency are also relevant to their operations.

C03 focuses on apparel consumption, where the product-service systems model also mentioned in subsection 2.1.4 was used. The data for analysis were collected through interviews with employees within the studied company. Study shows how sustainability can be included in strategic development, from product idea, development, production, and sales/rental to repair, reuse, and finally, recycling the product. The study also highlights challenges in a developed business model with increased sustainability, including technological platforms, distribution networks/supply chains for collecting and returning products, and consumer consumption preferences. This qualitative study done in Sweden emphasizes, as in the previous two judges, that the transformation is an ongoing process but that they achieved the desired results to some extent. New revenue streams and market channels proved to be a key success factor, followed by transparency and new frameworks for measuring the transition.

C04 is a qualitative study done in 2016. Fourteen Small and Medium-sized Enterprises (SMEs) are described in this study, focusing on the Dutch food and beverage industry. C04 seeks to explore the process of business model innovation for sustainability from a perspective that pays greater attention to internal processes and, from a management

4. RESULTS OF THE SYSTEMATIC LITERATURE REVIEW

perspective, builds on organizational change management visions. Data is collected using semi-structured interviews. The study found that collaboration, a straightforward narrative and vision, continuous invention, a sustainable foundation, profitability, and fortunate external events are all critical success factors for the change to business models for sustainability. Challenges include external occurrences, principle-agent issues, and a need for more support from broader actors and systems. The results highlight that businesses wishing to develop a sustainable business model must make sustainability the fundamental principle upon which the firm is founded. Continual development and improvement are required in addition to the support of various actors external to the firm, such as suppliers, customers, and the government.

C05 is a case study focused on yacht tourism as one business form among many within the tourism industry and, thus, within the broader category of the service industry. Semi-structured interviews were conducted with seven European SMEs whose business models were analyzed through sustainability challenges in their business models. All companies stated that the innovation process is ongoing and that they only partially managed to implement sustainable business models. To cope with the challenges posed by the lack of support from the broader system, companies have turned to collaboration, partnerships, and the education of external stakeholders. All seven companies emphasized that they actively participate in various local activities to raise sustainability awareness.

C06 describes 3 European companies in the manufacturing industry. It's a qualitative study where data was collected through semi-structured interviews and secondary data sources between 2019 and 2022. In this study, researchers mainly adopt the lenses of circular business models and analyze companies during their transition to SBM. In particular, the study investigates and presents unconventional managerial methods to create and capture value in circular business models and emphasizes the need to develop a systemic perspective on implementing these practices. In all three cases, it was stated that the transformation process was successful and that companies must do diligent work to maintain success, which indicates a similarity with the previous cases. As key success factors, they cite turning to new revenue streams and new market channels, as well as collaboration with partners.

C07 describes a Catalan bicentennial company that manufactures semi-finished copper products. The company decides on a circular business model for its innovation, and through qualitative and quantitative research, the study indicates the challenges the company encountered in that process. Also, the study describes the factors that influenced the successful implementation of the model. Data were collected from a variety of primary and secondary sources. With mainly environmental focus, it was shown that challenges force the performance of circularity to be gradual and to combine linear and circular models to maintain competitiveness. Regulations by the external system slow down the transformation process, which also puts pressure on profitability. Turning to new revenue streams and market channels partially solve the problems. The company is trying to passively force changes in regulations through active education of end users, which turned out to be a compelling method but relatively slow.

C08 was based on qualitative case study research. Researchers found four integrating and three differentiating decision-making tactics that managers usually deploy to create economic and sustainable value through their business model innovation. Data were collected from 16 creative services SMEs in the Netherlands through semi-structured interviews. The research tried to understand the most effective tactics for the sustainability challenges that are put in front of the company. It turned out that investing in the supply chain and communicating a sustainable message had positive effects on the entire process. Also, employee education helped raise awareness of sustainability, which turned out to be another key success factor at SBMI.

C09 focuses on Responsible Research and Innovation (RRI); this approach is briefly described in subsection 2.1.4. This study describes 16 for-profit and not-for-profit companies from Canada and Brazil. The research was approached from a multilevel model that analyzed how companies struggle with the challenges posed by responsible innovation. This qualitative study was conducted between 2017 and 2018, focusing on social responsibility in the health industry. They experienced the most difficulties with values alignment. Defining their responsible identity turned out to be demanding, as well as maintaining values throughout the entire innovation process. They tried to fight these challenges by internally training the teams to ensure the process went as planned. They changed the recruiting process to have valuable employees supporting this approach. Although they state that the innovation process was only partially successful, the researchers note that it is an ongoing process and that concrete results will be seen after a more extended period.

C10 is a single case study with the aim of sharing knowledge regarding practices for transitioning from a traditional business model to a SBM. This study analyzes a Thai aquaculture startup through qualitative research and data collection using semi-structured interviews. A Lean Business Model Canvas (LBMC) is described, which has been upgraded with additional sustainable elements. Data is collected from 15 participants, including customers and stakeholders. The primary sustainable focus of innovation is on the environment. The challenges they have faced include struggling towards financial sustainability as well as problems with the need for a workforce educated on sustainable goals. The startup tried to address these problems by turning to new revenue streams. The startup actively tried cooperating with local universities to raise sustainability awareness among students before entering the labor market. The researchers speak of the partial success of implementing sustainable values and emphasize that transformation is a long-term process.

C11 analyzes a circular firm in the British drinks and beverage industry. This model is described in more detail in subsection 2.1.1. The model talks about the greater effectiveness of business models in improving the environment's state. The study is about a single case qualitative study done in 2019. Data was collected through semi-structured interviews and secondary data collection. Research illustrates and describes the entrepreneurial process and describes in more detail the challenges the founders faced when implementing this model. The experiments with which they tried to fight these

challenges are also listed. It is stated that the implementation process was successful and that consumer habits represented one of the biggest challenges. Active participation in local projects and promotion of sustainability, turning to new marketing opportunities and partnerships proved to be of great importance as key success factors.

C12 investigates the difficulties of forming economic, social, and environmental values when operating as a hybrid venture in the UK. Drawing on hybrid organizing and sustainable business model study, it explores the importance of alternative business models used by small social enterprises. Responding to changes and challenges in the market and societal environment, the company has tried numerous business model innovations to deliver on all three forms of value capture, with differing levels of success. This longitudinal single case study, conducted between 2000 and 2017, contributes to our understanding of how business models act on hybrid missions, providing a medium for triple-bottom-line value capture. Data were collected through semi-structured interviews. One of the main challenges was the way of monitoring the implementation of the model as well as struggling towards financial sustainability. In order to face these problems, they developed new key progress indicators and worked on developing new products to expand the offer on the market.

4.2 Findings of systematic literature review

In the following, the analysis of the content of the selected papers is presented. In order to carry out the study of the content, findings are divided into several subsections. Sustainable business models and approaches to SBMI, used by companies, will be summarized, and their approach to innovation will give us answers about their efficiency. After that, the challenges and barriers companies face when innovating their business model will be mentioned. The most prominent challenges will be briefly described. We will also look briefly at the tensions created during innovation and how they affect the entire process. This is followed by findings on key success factors, i.e., factors that helped companies to transform their traditional business models into sustainable ones. Each key success factor will be briefly described and accompanied by real-life examples. In many cases, these key success factors were the company's steps to fight its challenges. The results will be accompanied by tables that will help overview all results.

4.2.1 Approaches to sustainable business model innovation

There is no doubt that companies will play a key role in the move towards a sustainable future [Long et al., 2018]. Especially when it comes to SMEs since they usually make up the largest part of the economy. That is why it is of great importance to find out or offer answers that would help these companies to achieve their sustainable goals more quickly. In section 2.1, it is written about the most popular models and their characteristics. In the following, some of these models and their representation in selected studies will be mentioned in order to get a broader picture of their effectiveness. Table 4.1 shows the sustainable business models and frameworks used by the companies described in the

selected studies. In multi-case studies, all described companies in the study used the same specified model or framework.

The sustainable business model or framework	No. of studies
Circular Business Model	3
Hybrid Business Model	2
Business Model for Sustainability	2
B Corp Model	1
Product-Service System Framework	1
Triple Bottom Line Framework	1
Responsible Research & Innovation	1
Lean Business Model Canvas	1

Table 4.1: Sustainable business models and frameworks used in selected studies.

In all the selected studies, it was described that implementing a sustainable business model is an ongoing process, regardless of the industry or the selected model. For several reasons, implementing sustainable business models in small and medium-sized enterprises can be an ongoing process. One reason is that SMEs have different resources or capabilities than larger companies. For example, they may need more financial resources to invest in new technologies or make significant changes to their operations. This was especially emphasized in the studies that described the manufacturing and aquaculture sector; since new technologies are "quite expensive," companies are often forced to use older technologies that are not sustainable due to a lack of resources. Additionally, SMEs may need to gain the expertise or knowledge in-house to identify and implement sustainable business practices. As a result, they may need outside help or training to make the necessary changes. In eight of the twelve selected studies, the authors stated that support from the broader system needed to be improved while implementing the new model. Implementing sustainable business models in SMEs may be an ongoing process because it can be time-consuming and complex. It may require significant planning and coordination and changes to methods and systems.

During the literature search and screening for inclusion, a frequent mention of the circular business model was noticed. This model, also called circular economy, is described in more detail in subsection 2.1.1. As shown in table 4.1, three out of twelve studies chose this model, which makes it the most represented, followed by a hybrid business model. The circular business model is the most common choice regarding sustainable environmental focus. There are several reasons stated in selected studies why the circular business model is becoming increasingly popular and widely implemented. One reason is that it can help reduce the environmental impact of business activity by reducing the number of resources extracted and waste produced. All three studies mentioned that the model also helps to reduce costs by reducing the need to source new raw materials and dispose of waste constantly. Another reason for the popularity of the circular business model is that it can create new business opportunities and stimulate innovation. For

example, companies specializing in repairing and refurbishing products like C07 can thrive in a circular economy, as can those developing new technologies for extracting and using resources more efficiently. The circular business model is gaining traction as a way to address a range of environmental and economic challenges. Its adoption is likely to continue to grow as more companies recognize the benefits it can bring.

Only four out of twelve studies reported the successful implementation of a sustainable business model. All other studies mention that the implementation was only partial. One of the reasons is a large number of challenges and barriers (described in more detail in the next section), as well as the already mentioned part about the ongoing implementation process. Although all companies achieved positive results in most cases, they still have a long way to go.

Generally, business models are composed of the following core elements, such as (1) Value proposition, (2) Value Creation and Value delivery, and (3) Value Capture [Zott et al., 2011]. The value proposition describes the assortment of services and products developed by a business with the aim of creating value for customers [Osterwalder et al., 2005] [Osterwalder et al., 2011]. Value creation and delivery are the main activities of an organization/business that sells a product or service [Schaltegger et al., 2016] [Boons and Lüdeke-Freund, 2013]. It is also related to routine management, commercialization and communication channels, obtaining resources, strategic partnerships, and using technologies [Osterwalder et al., 2011]. And value capture relates to the cost structures and revenue generated by a business [Schaltegger et al., 2016] [Osterwalder et al., 2005] [Bocken et al., 2014]. During the analysis of the selected studies, it was noticed that during the implementation of the new sustainable business model, the most changes were made precisely to the elements of the business model that, include value creation and delivery. The slightest changes happened with value capture. The specific reasons for this trend were not stated; however, from the analyzed studies, it was possible to conclude that it is precisely in the area of value creation and delivery that companies have the most room for innovation.

4.2.2 Challenges and barriers in SBMI

As can be seen, companies choose different approaches to sustainable business model innovation. In order to provide an answer to the research question and better understand the innovation itself, the barriers and challenges faced by companies in this process of innovation are also described. Table 4.2 summarizes the findings and shows how much a particular factor was mentioned during the analysis of the final set of literature.

Profit and impact

Remaining profitable and maintaining a sustainable impact became SMEs' most frequently mentioned challenge. In the selected studies, many reasons are given for this, including the hope that sustainable business practices often involve additional costs, such as investing in renewable energy sources or upgrading equipment to be more energy efficient. These

Challenges to SBMI	No. of mentions of the factor
Profit and impact	10
Lack of support from the wider system	8
Values alignment	7
Channel conflict	5
Measuring transition	4
Customer ownership	3

Table 4.2: Challenges and barriers to sustainable business model innovation in SMEs and the number of mentions of the particular challenge or barrier in the final set of literature.

costs can make it more difficult for a business to be profitable, at least in the short term. Although specific factors are often mentioned, C01 describes problems at the very top of the company where CEOs can't decide to what level they want to sacrifice profitability for sustainability. Such conflicts cause a chain reaction and lead to other company challenges. Sustainable business models may require a shift in how products and services are priced. And this was shown in various analyzed studies as an option chosen by the analyzed company. C07 and C04 state that the challenge of profitability forced them to seek profit in new niches, markets, and products. Also, sustainable business models require a shift in how products and services are priced, as stated in C10 and C11. For example, a company may need to charge more for products made with sustainable materials in order to cover the costs of sourcing those materials. However, this can be difficult to do if consumers are not willing to pay more for sustainable products or if there is significant competition from businesses that need to implement sustainable practices. C10 states that one of the ways to fight against the challenge of profitability is flexibility, i.e., the constant ability to adapt to the market, users, and technologies. Sustainable business model innovation often involves collaboration and partnerships with other stakeholders, suppliers, customers, and regulators. Establishing and maintaining these relationships can be time-consuming and costly and can divert resources away from activities that directly contribute to profitability. These investments are demanding; they're often mentioned and will be described in more detail in the following chapters.

Lack of support from wider system

Access to resources, be it technology, material goods, or regulations at the state level, is one of the main challenges for SMEs. C07 points out that the need for more support from the broader system is often the problem of the technological barriers in front of the company. SMEs often needs more resources, such as time, money, and expertise, making it more difficult to implement sustainable business practices. With support from the broader system, SMEs can easily access the resources they need to innovate sustainably. Waste management and the lack of infrastructure are listed in C02 as factors that depend on the country where the company is located, and regulations that limit the company from innovating greatly affect the speed of project implementation. SMEs may face legal

and regulatory barriers, such as a need for more funding support, transparent regulations, and guidance for sustainable business practices. Support from the broader system, such as providing funding, transparent rules, and advice on sustainable business practices, can help SMEs overcome these barriers. Many SMEs may need more knowledge and information to understand and implement sustainable business practices. Support from the wider system, such as training, education, and mentoring programs, can help SMEs gain the knowledge and skills they need to innovate sustainably. C04 discusses that the market must be prepared before any serious innovation; otherwise, the lack of support from the wider system can jeopardize the process.

Values alignment

SMEs often have different priorities than larger companies, such as focusing on immediate profitability rather than long-term sustainability. This can make it difficult for SMEs to align their values with those of sustainable business practices, especially if adopting sustainable practices can negatively impact short-term profitability. C01 states that within the company, there was often a conflict between the employees' views on sustainability on the one hand and the views that the company wanted to promote. C12 finds it challenging to get all employees, managers, and board members aligned with sustainable business practices. It may require a cultural shift in the company, and some people may resist change or have different values or priorities. C08 cited the most challenges and barriers in this context and that they initially encountered the problems of defining values and then maintaining the initial mission over a long period as new challenges arrived. They state that it is necessary to have uniform attitudes within the entire company for innovation to be successful and that steps must be taken already during the recruiting process. This will be discussed in subsection 4.2.3.

Channel conflict

One of the challenges in SBMI that creates confusion and mistrust among customers, as well as the tension between the company and its distribution partners, is channel conflicts. C01 and C02 encountered problems in which their partners focused exclusively on economic gains without considering sustainable values. C03 noted that although initial agreements were established, they were only followed through for a short time. It can make it difficult for the company to implement sustainable practices across all channels, as different channels may have various financial and logistical constraints. C04 points out that distribution channels and partners adapt primarily to end users rather than to companies that want to implement sustainable innovation. Because of this, companies are forced to use different tactics to change the awareness of end consumers to force partners to change their business passively. Companies must carefully align their distribution channels and communication strategies to ensure they're consistent and supportive of all stakeholders. C07 describes SMEs engaged in recycling that partners refuse to cooperate due to the mistaken belief that the quality of recycled products could be better.

Measuring transition

Sustainability is a complex and multifaceted concept, and it can be challenging to define and quantitatively measure the transition toward sustainable business practices. This makes it difficult for SMEs to track their progress and assess the impact of their sustainable business model innovation efforts. C01 points out that metrics are usually tailored to look for financial factors, while it is difficult to see results for social aspects. C09 describes that there needs to be more standardization in measuring and reporting on sustainable business practices, making it hard for SMEs to compare their performance with that of others in their industry or sector. With established metrics, SMEs may be able to understand the impact of their SBMI efforts. C12 and C03 state that they don't have the expertise to develop and implement a measurement framework, further complicating their efforts to measure their sustainable business model innovation efforts.

Customer ownership

Many analyzed SMEs may need to deeply understand customer needs and preferences regarding sustainable products and services. With this understanding, it can be easier for companies to design sustainable business models that appeal to customers. C11 states that they constantly need help understanding their consumers' habits, making it difficult for them to implement the new model. The analyzed cases indicate that SMEs often need more marketing and communication capabilities, making it hard to communicate the value of sustainable products and services to customers and build a loyal customer base. C03 describes the challenge of increasing awareness among end users since they significantly impact the entire chain. C02 emphasizes that communicating sustainable values and actions to users and partners takes time. And that this represents a challenge because it slows down other innovations that are also needed.

Internal tensions

As described in section 2.2, numerous tensions arise in the integration process. Table 2.2 shows the categorized tensions based on [van Bommel, 2018]. Performing tension can occur through competing goals and strategies that arise between stakeholders. They can happen at different internal and external levels, from the customer to the organizational structure. Collective and individual identity issues can create belonging tensions [Smith and Lewis, 2011]. Organizing or changing tensions come to the fore when the environmental/social goals combine with the requirements of the business model, which causes competition within organizational structures, practices, processes, and cultures [Smith and Lewis, 2011]. The last mentioned tension refers to learning or temporal tensions. These tensions arise while pursuing more time horizons, such as change, growth, and flexibility [Smith and Lewis, 2011]. Analyzing the final set of the literature, the occurrence of performing tensions followed by belonging/identity tensions was recorded most often. This indicates disagreement and a lack of unified vision between stakeholders. Having all parties on the same page has proven to be one of the main challenges regarding internal tensions.

4.2.3 Key success factors

The analysis of the final literature set gave insight into how companies approach challenges during the transformation of the business model. In order to provide an answer to the research question and better understand the success stories experienced by SMEs, the key success factors in the process of SBMI are described. Table 4.3 summarizes the findings and shows how much a specific factor was mentioned during the analysis of the final set of literature.

Key success factors	No. of mentions of the factor
Collaboration/Partnerships	9
Education	8
New revenue streams and market channels	8
Active engagement	4
Values alignment	4
Certification	3
Frameworks for measuring transition	3
New ways of communication	3
Transparency	3
Recruiting process	2

Table 4.3: Key success factors to sustainable business model innovation in SMEs and the number of mentions of the particular factor in the final set of literature.

It can be seen from the table 4.3 that SMEs have a diverse approach to innovation and that different strategies have proven effective. In the following, individual factors will be described in more detail.

Collaboration/Partnerships

Different challenges can be put in front of SMEs, as seen from subsection 4.2.2. Regardless of these challenges, but also often as a response, companies were forced to find solutions that would help them in sustainable innovation. While analyzing the final set of literature, it was noted that studies cited various factors that would help companies during SBMI. Among all the key success factors, collaboration and partnerships were often mentioned. SMEs often need more resources and expertise, as stated in C02 and C08, which can make it difficult for them to innovate sustainably. Collaboration and partnerships provide SMEs with the help and expertise needed to implement sustainable business practices. C01 explains that the company had to choose partners with the same vision of sustainability to succeed in innovation. C04 states that partnerships with suppliers help SMEs to access sustainable raw materials, and partnerships with customers can help companies to sell sustainable products and services. They decided to form partnerships with various charities in order to succeed in sustainable goals. Collaboration and partnerships can also provide SMEs opportunities to learn from and share best practices with other businesses and organizations, as seen from C05. The companies invested in new networks

and actively cooperated with local communities to achieve the set sustainable goals. Collaboration and partnerships can also help SMEs enhance their reputation and brand recognition, as with C10. By partnering with other companies or organizations recognized for their sustainable business practices, SMEs can improve their reputation and attract customers who value sustainability. C10 decided to partner with universities and, thus, already at an early stage, working on expanding the awareness of sustainable goals among the future workforce. C06 actively involved its partners in the innovation process, so they were present and better understood the values the company wanted to promote, ultimately bringing them better results.

Education

The education of employees and customers is one of the key success factors in the analyzed literature. Education can help engage employees and gain their buy-in for sustainable business practices. When employees understand the reasons for and the benefits of sustainable practices, they're more likely to support and implement them. The companies described in C02 and C04 have taken such an approach. They invested in educating their employees to raise awareness of sustainability and thus speed up the innovation process. Education also helps SSMEs understand customers' needs and preferences when it comes to sustainable products and services. C05 describes companies' involvement in local communities' education; by educating customers on the benefits of sustainability and the environmental impact of their choices, SMEs can better design sustainable business models that appeal to their target audience. Education helps SMEs to understand and comply with regulations and standards related to sustainability, which can be essential for the long-term viability and success of the business. A creative solution is described in C07, in which the company experienced a problem with exclusively profit-oriented suppliers, only following end-user trends. Because of this, the company worked on educating end users in order to force key suppliers to implement sustainable practices.

New revenue streams and market channels

The analyzed companies showed various approaches when it comes to new revenue streams and market channels as a success factor. Sustainability can be a differentiator for SMEs in a highly competitive market. Creating new revenue streams and market channels through sustainable business model innovation can give SMEs an edge over their competitors. More than half of the cases recorded an approach in this direction. C07 and C12 decided to launch new products on the market as well as expand the market to deal with profitability challenges. This helps them to reduce dependence on a single product or market, thus making the business more resilient and sustainable in the long run. By changing their pricing model, C10, C06, and C03 successfully increased their sustainable goals. C10 describes the implementation of subscription and rental as one of the key success factors during the transition to SBM. A similar path was followed by C03, while C06 describes the implementation of the pay-per-use pricing model. By creating new revenue streams and market channels, C11 changes the customer channel

structure. For example, by offering sustainable products or services, companies can tap into a growing market of consumers who are willing to pay more for goods and services that are environmentally friendly.

Active engagement

Active engagement in sustainable projects and communities was described in four cases as a key success factor in SBMI. Active engagement in sustainable projects and communities can provide SMEs with opportunities to network and collaborate with other businesses, organizations, and experts in the field of sustainability. This can help SMEs to access new resources, learn from others' experiences, and gain access to new markets and customers. The companies described in C04 encourage co-creation, which helps them to improve their engagement with the local community. C05 and C10 are engaged in activities like maintenance and environmental cleaning, where they strive to create projects in which they want to include residents and customers in realizing sustainable goals. Also, to build their reputation and credibility as responsible and sustainable businesses. C08 describes the active involvement of companies in recycling projects because, in addition to working on sustainability, it also helps companies to stay informed and up to date on the latest sustainable business practices and trends, which can support their efforts to innovate in sustainable ways.

Values alignment

As stated in several analyzed studies, value alignment inside and outside the company can be a key success factor in sustainable business model innovation. C04 and 05 explain that values alignment help to ensure that employees are fully engaged and committed to the company's sustainable business practices. Employees who understand and share the company's values are more likely to support and implement sustainable business practices. C04 emphasizes that a straightforward narrative and vision, sharing the same vision and ensuring their commitment to sustainability, aided the transition to SBM. C05 explains that it is an ongoing process; the social value is based on providing all-year work opportunities for local employees. Values alignment with other companies and organizations can facilitate collaboration and partnerships, which proved to be key success factors for sustainable business model innovation in C01. Companies with similar values and priorities are more likely to work together effectively towards a common goal. C01 explains that communication is needed between internal departments; although roles between departments are different, values must be aligned for sustainable innovation to grow.

Other key success factors

Among the already mentioned key success factors are certification, frameworks for measuring transition, new ways of communication, transparency, and recruiting process. The latter was less mentioned, but their infrequent mention does not diminish their value in

SBMI. The certification helped C09 to differentiate itself from its competitors and increase its competitiveness by demonstrating its commitment to sustainability. Certification was used in C12 as well to help transfer social approval. Obtaining certification may provide SMEs with a benchmarking framework and a set of best practices that they can follow to improve their sustainable performance continuously. This may be essential to maintaining the certification and staying competitive, as described in C01. While some companies relied on certification as a guide in monitoring and implementing sustainable innovation, C03 and C12 created new key performance indicators for better social and environmental measurements. With new ways of tracking sustainable metrics, sustainable innovation was more transparent. C03 not only added new Key Performance Indicator (KPIs) adapted to sustainable development but also introduced a framework for measuring sustainable performance, which turned out to be partly successful since it was stated in the case that the process is long-term and that real success will only be recognized in a long-term perspective. With this, they could track their progress and identify areas where they need to improve. This can be essential for monitoring the effectiveness of their sustainable business model innovation efforts and making data-driven decisions about strengthening them. As described in C06 and C10, the traditional approach to customers needs to be adapted; new communication channels helped SMEs to build trust and credibility with customers, suppliers, investors, and other stakeholders. By effectively communicating their commitment to sustainability and the impact of their sustainable business model innovation efforts, companies demonstrate their commitment to sustainability and attract customers, partners, and investors who value sustainability, as stated in C03. In addition to new ways of communication, C02, C03, and C09 point out that transparency also falls under the key success factor since it raises trust between stakeholders. Transparency can help SMEs to build trust and credibility with customers, suppliers, investors, and other stakeholders by clearly communicating their sustainable practices and performance. "When stakeholders have access to accurate, relevant, and up-to-date information about the SMEs sustainability performance, they can make better-informed decisions," mainly disclosing information in social media and annual reports, as described in C02. Changes in the recruiting process helped C01 attract and retain employees passionate about sustainability and with the skills and knowledge needed to support sustainable business model innovation efforts. C09 points out that changes in the recruiting process also helped companies build diverse teams, which led to increased creativity and innovation in sustainable business model innovation. A diverse workforce can bring different perspectives and skills, which can be valuable when designing sustainable business models that appeal to a wide range of customers.



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Discussion and outlook

Extensive literature has been published on the topic of sustainable business model innovation over recent years with a clearly increasing trend. This trend is shown graphically in figure 5.1. As one of the critical elements of the future society [Smith and Tracey, 2016], SBMI will probably continue to attract the attention of companies and academia.

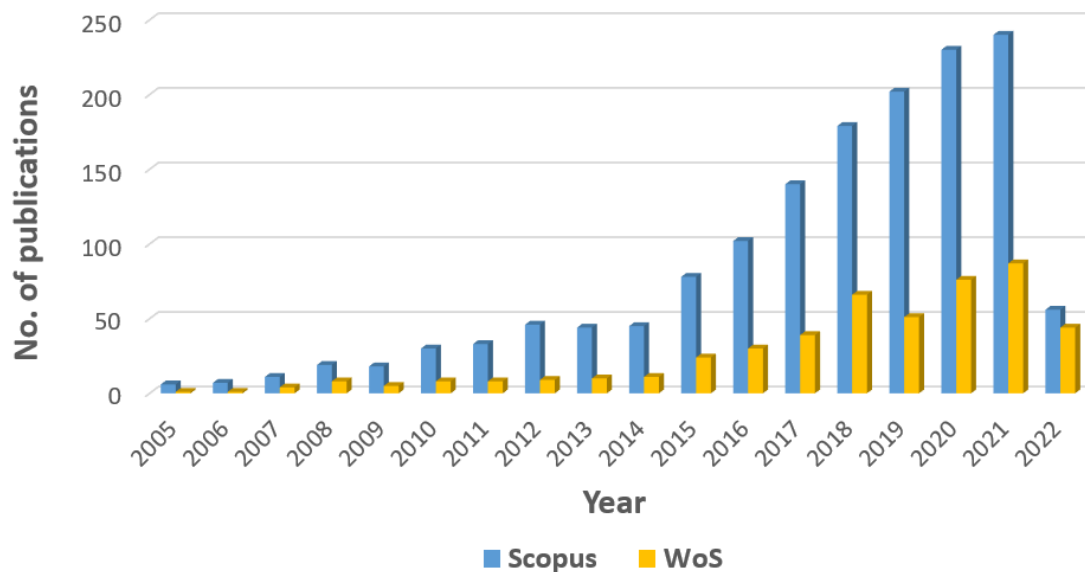


Figure 5.1: Number of publications per year after the first application of the search query.

This thesis analyzed the current state-of-art within the sustainable business model innovation in SMEs. The research questions defined at the very beginning of the process were:

- What barriers and challenges have SMEs experienced during sustainable business model innovation?
- What are the key success factors for implementing sustainable business models in SMEs?

To fulfill the goal of the thesis and answer the research questions, the systematic literature review has been done through a web-based database called Web of Science and Scopus, containing a large number of scientific publications in relevant research areas, and its results were put under analysis.

5.1 Summary of results and findings

Comprehensive and reproducible results were ensured based on a strict review protocol and documentation. An initial search was conducted on April 26, 2022. After applying the search queries, the first results yielded 1,968 primary studies, after which the application of inclusion/exclusion criteria and quality assessment followed. The final result was 12 studies that met the conditions to answer the research questions. Analysis and data extraction followed, and the extracted data can be found in section 6.2.

The review resulted in use cases describing SMEs in various industries, most often located in Europe. Most publications covered the food sector (4 out of 12), followed by manufacturing, service, recycling, banking and finance, aquaculture, tourism, health, apparel, and fashion.

Sustainable business models are undoubtedly complex and require coordination between different stakeholder requirements [Evans et al., 2017] and simultaneous attention to sustainable values [Gao and Bansal, 2013]. The innovation process is an ongoing process. Research has shown that the circular business model is most often represented in the analyzed cases, which confirms the growth in popularity of this model in recent years [Sassanelli et al., 2019] especially when it comes to sustainable environmental focus as shown in the final set of literature. When it comes to the core elements of the business model [Zott et al., 2011], companies paid the most attention to value creation and delivery since companies have the most room for innovation in this area. More details on the sustainable business model approach to innovation can be found in subsection 4.2.1.

The results showed that SMEs approach SBMI in different ways, experiencing various challenges in that process as well as success factors that help them in sustainable innovation. Regardless of the variety of approaches and creativity to solving problems, the results gave insight into certain recurring aspects, whether they're challenges or key success factors. According to the research results, barriers and challenges in SMEs during are most often related to profit and impact, followed by lack of support from the wider system, values alignment, channel conflict, measuring transition, and customer ownership.

Remaining profitable and applying sustainable values in that process proved to be a demanding challenge, as many sustainable business models may have lower financial returns in the short term. The reasons for this include new technologies, ways of reaching customers, environments, and materials; more about this in section 4.2.2. Another challenge is the lack of support from the wider system, such as government policies or access to funding. Without this support, the innovation process becomes much more demanding and complex. Changing this factor could speed up the implementation of SBMs. Values alignment can also be difficult, as sustainable business models may require significant changes to the company's operations and culture. These changes are a long-term process involving stakeholders inside and outside the company. Channel conflict can also arise due to implementing sustainable business models, as traditional distribution channels may not align with the new model; companies' experiences with this challenge are described in section 4.2.2. Measuring the transition to a sustainable business model from a traditional one can also be difficult, as it may not be immediately apparent what metrics should be used to track progress. These problems slow down the whole process and can lead the company in the wrong direction. Customer ownership is mentioned as a last challenge, as it may be difficult to get customers on board with the new sustainable business model, ideas, and values. A detailed insight into experienced barriers and challenges by SMEs can be found in subsection 4.2.2.

Regarding the answer to the second research question, the research identified ten key success factors during sustainable business model innovation. The identified factors are collaboration and partnerships, education, new revenue streams and market channels, active engagement, values alignment, certification, frameworks for measuring transition, new ways of communication, transparency, and recruiting process. These factors are also explained in more detail in subsection 4.2.3. The most frequently mentioned factor is collaboration and partnerships, which can provide access to resources, expertise, and networks that can help accelerate the transition to a sustainable business model. Education and training play an essential role, as they can help employees, managers, and end customers understand the benefits and opportunities of sustainable business models and their challenges. New revenue streams and market channels are mentioned as well, as they can provide new opportunities for the growth and expansion of the company. Research has shown that active engagement with customers, suppliers, and other stakeholders can also be essential, as it can help to build trust and ensure that the sustainable business model is aligned with their needs and values. Keeping values aligned was mentioned several times in the researched studies, affecting the entire innovation process. Sustainable innovation is a complex task. For companies to succeed in achieving their goals, demonstrate commitment to sustainability, and provide a benchmark for progress, certification and frameworks for measuring progress have proven to be crucial. New ways of communication and transparency were also mentioned in several studies as an indispensable part of innovation and as a factor that enabled stakeholders to gain trust in the company as well as to allow improving internal processes. It has been emphasized several times in the researched studies that the beginning of an individual's work in the company is essential; it brings new value to the company, and therefore the recruitment

process is listed as a key success factor since improvements in this area ensure that new employees are familiar with the values that sustainable innovation brings. Looking at it from a larger perspective, sustainable business model innovation in SMEs requires a holistic approach that considers a wide range of factors, and it is essential that these factors are given sufficient attention for SBMI to be successful.

5.2 Discussion of used methodology, limitations, and future directions

The procedure used in the thesis is based on well proven scientific method. A final analysis, nevertheless, leads to the following consideration presenting the possibility for improvement in the future.

Although only twelve studies entered the final literature set, they undoubtedly provided insight into the trends accompanying SMEs in their sustainable innovation. Additional publications in sustainable business model innovation may increase the quality and reliability of results. Creating the review protocol, a list of keywords used in the search query was also designed to filter electronic databases. The search was done directly on the web interface, which could have been accelerated if an automated search approach had been used. It was noticed that many studies, eliminated during the quality assessment, had an exclusively theoretical approach to analyzing the company without actual data from the company. Also, the web interfaces of the selected databases are subject to constant updates. Because of this, the steps for replicating the results in the future may be different through the web interface. Including other electronic databases could provide more valuable publications.

The research was done in 2022, and with the growing trend of publications in this area, there is a possibility that very soon, studies will be published that could contribute a new type of insight into the analyzed problem, where the scope for further research opens up. Most of the surveyed companies are located in Europe, which gives us limited insights into implementing sustainable business models at the world level. Additional research in certain countries or continents, such as Asia and North America, could provide significant insights. A small number of industries were also analyzed in which sustainable innovation was done. Since the research results showed diverse approaches to implementing sustainable models, the research of a particular industry or sector could provide more concrete and tangible results for SMEs.

We can often associate "greenwashing" with the concept of sustainable innovation. This is a term used to describe a marketing strategy where companies present themselves as more environmentally friendly or sustainable than they actually are. In the area of sustainable business model innovation, greenwashing can be particularly harmful because it can undermine the efforts of companies genuinely trying to make a positive environmental impact. Since this is a form of secondary research, primary studies have considered this factor. After analyzing the final literature set in the primary studies, no

mention of anything that would include "greenwashing" was noticed. As stated in the key success factors, transparency is necessary for the successful long-term implementation of a sustainable business model. Therefore, looking back on any techniques of deceiving sustainability will only have negative consequences for SMEs.

The type of extracted data limits analysis. It would be helpful to consider the companies' financial statements and compare them with the transformation process to gain insight into the actual economic profitability of such an undertaking. However, due to the anonymity of the study, this dimension was omitted. It has been stated several times that SBMI is an ongoing process, which indicates that the real success of such undertakings will only be known from the long-term perspective.

It was mentioned that SMEs make up most of the economy and that their role is significant. However, due to much smaller resources than large corporations, SMEs are often more vulnerable to changes, difficulties in innovation, and lack of support. This was discussed in more detail in previous chapters. However, the importance of support from the wider system as a challenge to sustainable innovation must be emphasized. It was noted that most of the investigated SMEs faced this very challenge, while at the same time, they couldn't influence this factor. Regulations, policymakers, and government must participate more in sustainable innovation. During the research, it was noted in several cases that lack is the same reason for failure, and although they may exist, they're very slow and poorly implemented, which also harms innovation. By supporting sustainable innovation, we can create a more level playing field for businesses of all sizes and help reduce the barriers to entry for new and innovative companies. Policymakers should consider introducing new incentives or regulations that support sustainable business practices for SMEs. This might include tax credits, grants, or access to markets, as well as educational resources and training programs that can help SMEs stay up-to-date with the latest developments in sustainable business practices.

5.3 Conclusion

In conclusion, the research conducted in this thesis has highlighted the significant challenges and key success factors in sustainable business model innovation. Through a systematic literature review and case studies analysis, it was found that profitability, support from the wider system, as well as value alignment are among the main challenges facing organizations in the process of SBMI. However, it was also found that organizations that effectively seek collaboration and partnerships to educate stakeholders, have a clear and long-term vision, and continuously monitor and adapt their sustainable business models are more likely to succeed. It is clear that sustainable business model innovation is a complex and multi-faceted process that requires a holistic approach. Organizations must consider not only the environmental and social impact of their business models but also the economic viability and scalability. Furthermore, companies must engage with a range of stakeholders, including customers, employees, suppliers, and investors, to build a shared understanding of the issues and opportunities, and to co-create solutions

5. DISCUSSION AND OUTLOOK

for growth. All around, the findings of this study provide valuable insights for SMEs looking to innovate their business models sustainably. Findings highlight the importance of active engagement, transparency, and targets for sustainability, as well as the need for an effective recruiting process and continuous monitoring and adaptation. The study also emphasizes the importance of having a long-term vision and a clear understanding of the economic, environmental, and social dimensions of sustainable business model innovation. However, it is essential to note that sustainable business model innovation is a continuously evolving field. Further research is needed to fully understand the challenges and success factors and develop effective strategies and tools for organizations to implement sustainable business models. Sustainable business model innovation is crucial for achieving a sustainable future. Still, it is a complex and challenging task that requires a holistic approach, precise definitions, metrics and targets, effective stakeholder engagement, and continuous monitoring and adaptation. It is essential to continue studying and researching in this field to gain more knowledge and understanding of the challenges and success factors and to develop effective strategies and tools to implement sustainable business models.

Appendix

6.1 Review protocol

Title of the thesis/research: Challenges and key success factors in sustainable business model innovation in SMEs: A Systematic Literature Review

Author: Filip Šekerija

Supervisor: Univ.Prof. Mag.rer.soc.oec. Dr.rer.soc.oec. Sabine Theresia Köszegi

Rationale:

Although sustainable business models are not entirely new, there is a lack of empirical research on how to implement them and manage conflicts. Implementing a new business model can be a complex challenge for companies [Cullen and De Angelis, 2021]; in his research on circular entrepreneurship, the author concludes that very little is known about such companies and their social and environmental outcomes. While the research results provided empirical evidence that large companies are progressively working on their sustainable strategies, several studies have shown that startups, Small and Medium-sized Enterprises (SMEs) lag behind when it comes to sustainable practices [Jansson et al., 2017] [Chassé and Boiral, 2017] [Schmidt et al., 2018] and [Battistella et al., 2018] calls for more focus to be placed on SMEs research when it comes to the implementation of sustainable business models. Although a lot of valuable results can be found in classic studies, [Corral-Marfil et al., 2021] talks about the importance of using use cases as a source of information since they give a realistic view of the actual situation within the company and the way companies deal with the challenges of implementing SBMs.

When it comes to the challenges and barriers that companies face [Geissdoerfer et al., 2018] mention that this process is "largely enchanted." The process through which companies develop their business model and adapt over time is not fully clarified [Ritter and Lettl, 2018]. Also, a sustainable business model is rarely viewed from a multilevel

perspective [Kraus et al., 2020]; therefore, researching several different uses can give a more thoughtful picture and perspective on the mentioned issue. [Rozentale and van Baalen, 2021] mentions that there are no studies that explain how companies can actually deal with all the tensions and challenges they face when establishing a new business model, not only at the organizational level but also at the managerial level [Davies and Doherty, 2019].

Definition of key terms/concepts:

The research by Geissdoerfer, M., Vladimirova, D., Evans, S. (2018) gave a definition of the key underlying concepts related to sustainable business models through a systematic literature review. The concepts defined in this research will be used in the thesis. Defined terms are:

- *Business model (BM)* – "simplified representations of the value proposition, value creation, and delivery, and value capture elements and the interactions between these elements within an organizational unit."
- *Sustainable business models (SBM)* – "business models that incorporate pro-active multi-stakeholder management, the creation of monetary and non-monetary value for a broad range of stakeholders, and hold a long-term perspective."
- *Business model innovation (BMI)* – "the conceptualisation and implementation of new business models. This can comprise the development of entirely new business models, the diversification into additional business models, the acquisition of new business models, or the transformation from one business model to another. The transformation can affect the entire business model or individual or a combination of its value proposition, value creation and delivery, and value capture elements, the interrelations between the elements, and the value network."
- *Sustainable business model innovation (SBMI)* – "the conceptualisation and implementation of sustainable business models. This can comprise the development of entirely new business models, the diversification into additional business models, the acquisition of new business models, or the transformation from one business model to another."

Research questions:

1. What barriers and challenges have SMEs experienced during sustainable business model innovation?
2. What are the key success factors for implementing sustainable business models in SMEs?

Search methods:

Search methods will give a more detailed view of the first part of the research, which includes defining the main framework of the research, inclusion criteria, list of keywords and list of the disciplines in electronic databases.

Electronic databases:

- Scopus
- Web of Science

First-degree inclusion/exclusion criteria: criteria that defined the relevancy of sources applied in the search query.

- Timeframe of publication: 2005-2022
- Language of publication: English
- Document type: research articles, journals, and books
- Amount of text required (100%= full text): full text required
- Keywords and search terms used in Doc Title, Abstract, and Keyword: A AND B AND C (exhaustive list of combinations of keywords from each group)

List of search keywords and strings:

A	B	C
"sustainable business model*"	innovation*	"case stud*"
"business model* for sustainability"	application*	case*
"business model" AND sustainab*	transform*	"use-case*"
"business modelling" AND sustainab*	adapt*	example*
"business model design" AND sustainab*	implement*	
"business model" AND "sustainable development"	integrati*	
	apply*	

Table 6.1: Table of keywords used for search queries against electronic databases (A AND B AND C).

Relevant research categories – Scopus

Agricultural and Biological Sciences (AGRI)	Business, Management, and Accounting (BUSI)
Chemical Engineering (CENG)	Materials Science (MATE)
Computer Science (COMP)	Decision Sciences (DECI)
Earth and Planetary Sciences (EART)	Environmental Science (ENVI)
Energy (ENER)	Economics, Econometrics and Finance (ECON)
Engineering (ENGI)	Social Sciences (SOCI)

Table 6.2: Relevant research categories – Scopus

Relevant research categories - WoS

Agriculture, Multidisciplinary	Environmental Studies
Automation & Control Systems	Green & Sustainable Science & Technology
Biodiversity Conservation	Industrial Relations & Labor
Business (all)	Management
Chemistry, Multidisciplinary	Material Science (all)
Computer Science (all)	Mining & Mineral Processing
Ecology	Nanoscience & Nanotechnology
Economics	Polymer Science
Education & Educational Research	Public, Environmental & Occupational Health
Energy & Fuels	Social Issues

Table 6.3: Relevant research categories – WoS

Second-degree inclusion/exclusion criteria: Once the first-degree criteria have been done, the second-degree inclusion/exclusion criteria will include semantic criteria and a quality measure to narrow the number of primary studies that are competent to provide answers to research questions. Upon completing this step, a full-text screening will begin to obtain a final list of primary studies relevant to the research.

- Is the implementation of a sustainable business model described in the use case?
- Is it clear what models were used to implement the innovation?
- Does the use-case describe the implementation of a sustainable business model at SMEs?
- Was the issue of implementation and how to solve it mentioned?
- Were the challenges or key success factors when implementing a sustainable business model mentioned?
- How clear and coherent is the reporting?

Bibliographic packages such as Reference Manager or Endnote may be used for managing the large number of references that can be obtained from a thorough literature search.

Template for the extraction of the data from the final set of the literature

Data item	Value	Additional notes
Study identifier		
Title		
Author(s)		
Publisher		
Journal		
Document Type		
Year of publication		
Language		
...		
Study specific data	-	-
Single/multi case		
Research design		
Data source		
Year of data collection		
Industry		
No. of companies		
Size of the company		
Country		
...		
SBM application	-	-
Sustainable focus		
Model of framework		
Is the model already known?		
How long did implementation process take?		
Was the process successful?		
Challenges		
Key success factors		
Internal tensions		
Business model core element		
...		

Table 6.4: Template for the data extraction used in the research. Note: The template was used as a reference, and it was adapted for the final data extraction.

Structure and Contents of Report

Section	Subsection	Scope
Title		
Structured abstract	Context	The importance of the research questions addressed by the review.
	Objectives	The questions addressed by the systematic review.
	Methods	Data Sources, Study selection, Quality Assessment and Data extraction.
	Results	The main finding, including any meta-analysis results and sensitivity analyses.
	Conclusion	Implications for practice and future research.
Introduction	Problem statement	The main problems of the current topic will be discussed.
	Research questions	Each review question will be specified.
Theoretical background		Justification of the need for the review. Summary of previous reviews and used terminology
Review method	Included and excluded studies	Inclusion and exclusion criteria. List of included studies with rationale for inclusion.
Results	Findings	Description of primary studies. Results of any quantitative summaries Details of any meta-analysis.
Discussion	Principal findings	
	Strengths and Weaknesses	Strengths and weaknesses of the evidence included in the review. Relation to other reviews, particularly considering any differences in quality and results.
	Meaning of findings	Direction and magnitude of effect observed in summarised studies. Applicability (generalisability) of the findings.
Conclusion	Recommendations	Practical implications for sustainable business development.
		Unanswered questions and implications for future research.

Table 6.5: The table was used as a reference for the data synthesis and research structure. Note: The structure of the research was adapted later in the process.

6.2 Extracted data from the final set of literature

6.2. Extracted data from the final set of literature

ID	Title	Author(s)	Publisher	Journal	Document type	Year of publication	Language
C01	Strategies, practices, and tensions in managing business model innovation for sustainability: The case of an Australian Bcorp	Wendy Stubbs	Wiley Online Library	Corporate Social Responsibility and Environmental Management	Journal Article	2019	English
C02	Business models' innovations to overcome hybridity-related tensions in sustainable entrepreneurship	Daniele E. Matzembacher et al.	MDPI	Sustainability (Switzerland)	Journal Article	2020	English
C03	Business model development for sustainable apparel consumption: The case of Houdini Sportswear	Holtström, J. Bjellerup et al.	Emerald Publishing Limited	Journal of Strategy and Management	Journal Article	2019	English
C04	Critical success factors for the transition to business models for sustainability in the food and beverage industry in the Netherlands	Thomas B. Longa et al.	Elsevier	Journal of Cleaner Production	Journal Article	2018	English
C05	Sustainable Business Models of SMEs: Challenges in Yacht Tourism Sector	Cinzia Battistella et al.	MDPI	Sustainability (Switzerland)	Journal Article	2018	English
C06	Circular business models in the European manufacturing industry: A multiple case study analysis	Andrea Urbinati et al.	Elsevier	Journal of Cleaner Production	Journal Article	2020	English
C07	Recycling technology innovation as a source of competitive advantage: The sustainable and circular business model of a bicentennial company	José A. Corral-Marfil et al.	MDPI	Sustainability (Switzerland)	Journal Article	2021	English
C08	Crafting business models for conflicting goals: Lessons from creative service firms	Ieva Rozentale et al.	Elsevier	Long Range Planning	Journal Article	2021	English
C09	Moving toward responsible value creation: Business model challenges faced by organizations producing responsible health innovations	Pascale Lehoux et al.	Wiley Online Library	Journal of Product Innovation Management	Journal Article	2021	English
C10	Sharing knowledge on the sustainable business model: An aquaculture start-up case in Thailand	Montiean Pornpamomchai et al.	Taylor & Francis	Cogent Business and Management	Journal Article	2021	English
C11	Circular entrepreneurship: A business model perspective	Ufuk A. Cullen et al.	Elsevier	Resources, Conservation and Recycling	Journal Article	2021	English
C12	Balancing a Hybrid Business Model: The Search for Equilibrium at Cafedirect	Iain A Davies et al.	Springer	Journal of Business Ethics	Journal Article	2019	English

Table 6.6: Final list of studies

Case ID	Single/Multi case study	Research design	Data Source	Year of data collection	Industry	No. of companies
C01	Single	Qualitative	Semi-structured interviews and secondary data sources.	2016	Banking and Finance	1
C02	Multi	Qualitative	Semi-structured interviews and secondary data sources.	2018-2019	Service, Food, Recycle	12
C03	Single	Qualitative	Semi-structured interviews and secondary data sources.	2017	Apparel and Fashion	1
C04	Multi	Qualitative	Semi-structured interviews and secondary data sources.	2016	Food and Beverage	14
C05	Multi	Qualitative	Semi-structured interviews and secondary data sources.	2017-2018	Tourism	7
C06	Multi	Qualitative	Semi-structured interviews and secondary data sources.	2019-2022	Manufacturing	3
C07	Single	Qualitative and quantitative	Semi-structured interviews and secondary data sources.	2020	Manufacturing	1
C08	Multi	Qualitative	Semi-structured interviews and secondary data sources.	2018	Service	16
C09	Multi	Qualitative	Semi-structured interviews and secondary data sources.	2017-2018	Health	16
C10	Single	Qualitative	Semi-structured interviews and secondary data sources.	2020	Aquaculture	1
C11	Single	Qualitative	Semi-structured interviews and secondary data sources.	2019	Drink and Beverage	1
C12	Single	Qualitative	Semi-structured interviews and secondary data sources.	2000-2017	Fairtrade beverages	1

Table 6.7: Extracted data from the final set of literature. Part 1.

Case ID	Company size	Country	Sustainable focus	Model or framework	Known approach?	Implementation success?
C01	SME	Australia Brazil, Canada, Denmark, Estonia, Finland, Latvia, Lithuania	Social	BCorp	yes	partially
C02	SE's		Social	Hybrid Model	yes	yes
C03	SME	Sweden	Social and Environmental	PSS	yes	yes
C04	SME (6) + Startup (8)	Netherlands	All three	BMfS	yes	partially
C05	SE's	Italy, Spain, Portugal, Albania	All three	TBL	yes	partially
C06	SME	Europe	Environmental	Circular BM	yes	yes
C07	SME	Spain	Environmental	Circular BM	yes	partially
C08	SME	Netherlands	Social	BMfS	yes	partially
C09	SME	Canada, Brazil	Social	RRI	yes	partially
C10	Startup	Thailand	Environmental	LBMC	yes	partially
C11	Startup	UK	Environmental	Circular BM	yes	yes
C12	SME	UK	Social and Environmental	Hybrid Model	yes	partially

Table 6.8: Extracted data from the final set of literature. Part 2.

6.3 Search query - WoS

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6.4 Search query - Scopus

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Acronyms

- BMfS** Business Model for Sustainability. 7, 11
- CBM** Circular Business Model. 8
- CE** Circular Economy. 7, 8
- KPIs** Key Performance Indicator. 39
- LBMC** Lean Business Model Canvas. 12, 29
- NFP** Not-For-Profit. 10
- PSS** Product-Service Systems. 11
- RRI** Responsible Research and Innovation. 11, 12, 29
- SBM** Sustainable Business Model. 1–3, 7, 12, 13, 15, 17, 18, 25, 28, 29, 37, 38, 47
- SBMI** Sustainable Business Model Innovation. 3, 6, 7, 25, 29, 30, 34–36, 38, 39, 41, 42, 44, 45
- SE** Social Enterprise. 9
- SLR** Systematic Literature Review. 3, 15–17, 25
- SMEs** Small and Medium-sized Enterprises. 2, 3, 8, 15, 16, 21, 24, 25, 27–39, 41–48, 50, 81



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