Review

Sustainability and Circular Economy Business Development

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Review

Sustainability and Circular Economy Business Development

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Abstract: Currently, there has been a tendency for companies to direct the development of their businesses following circular economy trends associated with sustainability. European Community guidelines have established deadlines for the implementation of management strategies that allow creating and maintaining an effective and resource-efficient economic system, reducing the amount of en-ergy and materials used in production. In this scenario, this study makes sense, which aims to an-alyze academic studies on these topics with the aim of understanding future trends. In this sense, the objective of this study is to understand the potential impacts on business development of the inte-gration of sustainability and the circular economy. This article uses a systematic literature review, which has the objective of gather and analyze materials from different authors, carrying out an analysis to answer a specific question. The findings indicate that CE and sustainability are con-nected and businesses should implement sustainability and CE appropriate strategies to increase their competitiveness and improve resource efficiency. These strategies may integrate innovative technologies, the use of sharing platforms, product life extension, resource recovery to minimize waste and the integration of sustainability concepts in business as well as their communication with their stakeholders to change trends and behaviors.

Keywords: sustainability; circular economy; business development.

1. Introduction

Sustainability and circular economy (CE) have gained enormous attention in recent years from researchers, governments, businesses, investors, and society in general. Sustainability is concerned with integrating environmental resilience, economic growth, and social inclusiveness to ensure the wellness of current and future generations [1]. CE emphasizes the need to create and maintain a resource-efficient and effective economic system by reducing the amount of energy and materials used in production. According to Awan and Sroufe [2], CE involves prioritizing product reuse and repair and establishing restorative industrial systems. These practices contribute to the management of natural resources by removing valuable products or materials from the waste streams. As a result, Pieroni et al. [1] identify CE as a strategy for achieving sustainability. Sustainability and CE are connected in multiple ways and have contributed to the structural changes needed to implement sustainability initiatives. For instance, CE encourages people to reuse, recycle, and reduce materials used in production and consumption processes. These activities contribute to environmental and economic sustainability.

CE challenges and changes the traditional linear economic model that followed the take-make-use-waste process. It encourages businesses to rethink and redesign their strategies and operations across the entire value chain [3]. For instance, value creation in CE is causing a paradigm shift from value-in-transaction to value-in-use, where businesses deliver ongoing value to customers [4]. Unlike the traditional upfront-sales models, circular models adopt a continuous service-oriented process that redefines the concepts of value and ownership. As a result of these changes, the World Resources Institute projects that CE will reduce natural resource use by 32% within 15 years and 53% by 2050

 doi:10.20944/preprints202406.1697.v1

[2]. In addition, implementation of CE in the U.S. business sector is projected to contribute up to $4.5 trillion in GDP growth by 2030. These numbers reflect the revolutionary impact of CE and its innovations. Other than these economic benefits, CE is projected to have a significant effect on the environment. Velenturf et al. [5] note that issues such as depletion of natural resources, high carbon emissions, waste generation and its associated pollution have become prominent challenges. CE, as a sustainability initiative, address these problems by encouraging the adoption of innovations and change processes aimed at reducing resource exploitation and maximizing waste prevention. As a result, this systematic literature review synthesizes findings from 97 documents on the integration of CE and sustainability concepts and their potential impacts on business development.

2. Materials and Methods

A systematic literature review using the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) model was conducted. PRISMA 2020 structured approach enhances the transparency of the review process by encouraging detailed documentation of search strategies, inclusion and exclusion criteria, and data extraction methods [6]. This allows other researchers to reproduce the study, validating the findings. For this study, the researcher followed three stages, including planning, conducting the review, and reporting [7]. The planning stage involved defining the research objectives, the inclusion and exclusion criteria and keywords. The study aimed to systematically review and synthesize existing literature on the integration of sustainability and circular economy principles into business development.

To gather and select relevant materials, the Scopus database was employed. This decision was guided by some studies [8, 9, 10], who characterize Scopus as one of the most extensive and comprehensive curated abstract and citation databases available. Scopus includes a wide range of sources, such as conference proceedings, books, and journal articles, covering various global and regional research domains. Furthermore, it upholds high-quality data standards through an independent Content Selection and Advisory Board, which enforces a rigorous content selection and re-evaluation process. Table 1 summarizes the inclusion and exclusion guidelines used to filter relevant sources.

Table 1. Inclusion and Exclusion criteria for the study.

Inclusion	Exclusion
Must be relevant to the study topic, i.e., focus on CE, sustainability, and their applications in business development Research published within the last 10 years to ensure recent and relevant data Only peer-reviewed journal articles, conference papers, books, and authoritative reports for credibility and quality Research published in English to ensure consistency and comprehensibility	Duplicative content Inaccessible full text

Source: adapted from Rosário and Dias [9].

The second stage involved searching for relevant studies for analysis. It began with identifying the academic database, in this case, Scopus. Then, the keyword "sustainability" was used for the initial search, resulting in 426,058 document results. Adding the keyword "circular economy" reduced the search results to 9546. However, the researcher added the exact keywords "business development" to ensure that the sources identified were highly relevant to the study topic. In addition, these results were filtered to peer-reviewed sources published between 2014-2024. Other filters added include "full text" and "English" as the main language. The researcher also screened the documents to remove any duplicate records.

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It is important to highlight that this study had limitations, as it only focused on the Scopus database, excluding other scholarly and scientific databases. When conducting literature searches up to May 2024, it is essential to include peer-reviewed scientific and academic publications from a broader range of sources

These filter practices reduced the search results to 97 papers, which were then analyzed and synthesized in the final reporting stage (Figure 1).

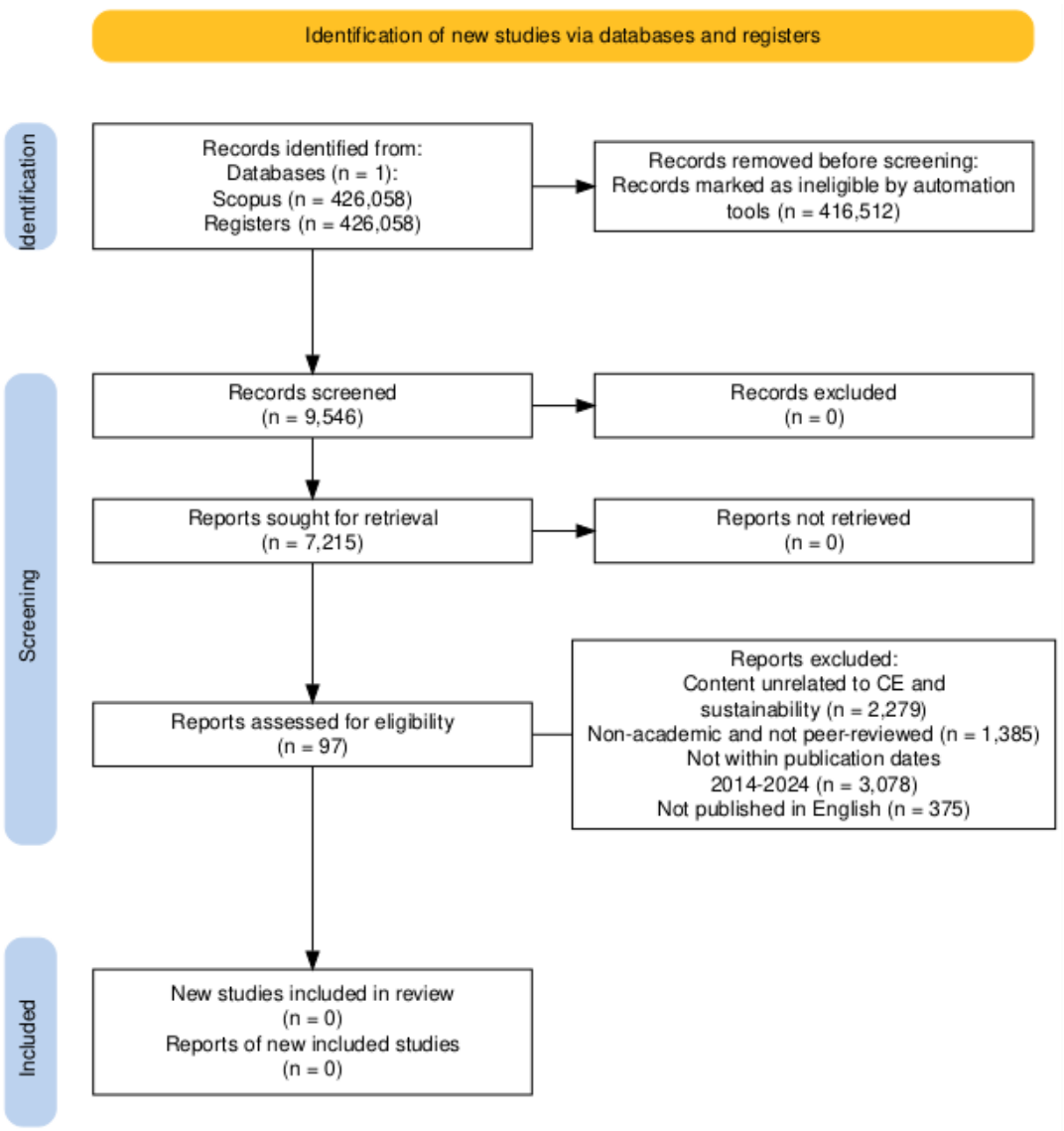

Figure 1. PRISMA 2020 flow diagram for literature search. Source: adapted from Haddaway et al. [11].

Thematic analysis was used, with the key findings organized based on common themes and patterns observed in the research. We employed content and thematic analysis methods to identify, examine, and present a range of documents, as specified by author's study [10].

Of the 97 selected documents, 96 are articles, and 1 are Conference papers.

3. Publication Distribution

Below, we present the quantitative analysis of peer-reviewed articles on the theme Sustainability and Circular Economy Business Development up to the period of May 2024. The year 2022 had the highest number of peer-reviewed publications on the subject. Figure 2 summarizes the peer-reviewed literature published until May 2024.

 doi:10.20944/preprints202406.1697.v1

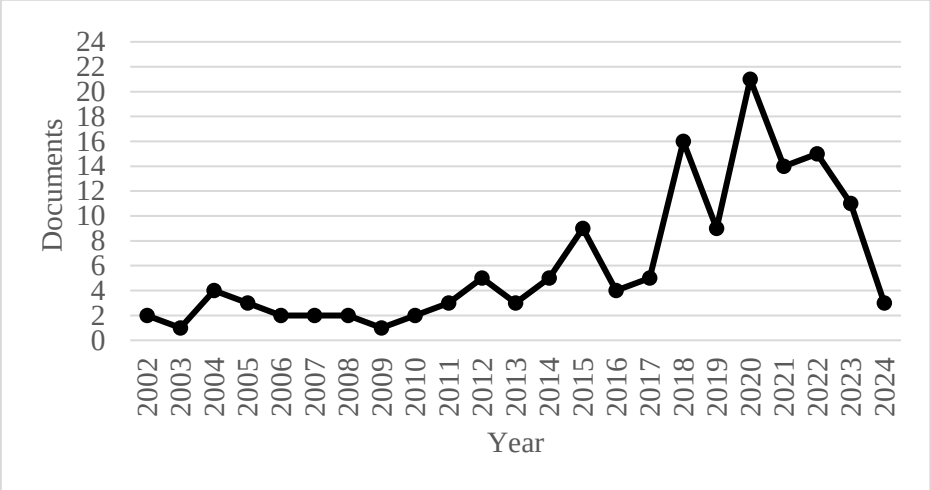

Figure 2. Documents by year.

Similarly, Figure 3 illustrates the regions and the countries with the most abundant literature contributions on the topic. In this sense, it was observed that the countries that stood out in the first places are Italy, Brazil and Germany.

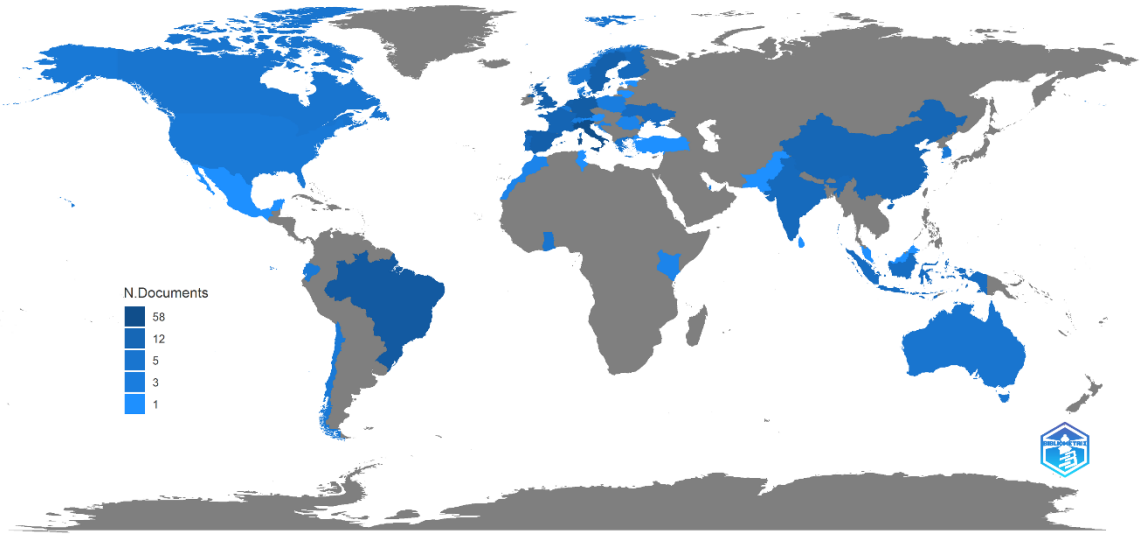

Figure 3. Documents by Geographical Area.**Source:** Own elaboration.

Table 2 and Figure 3 present the leading 10 nations that have made significant scientific contributions in the studied fields. The analysis seeks to ascertain whether these countries deepen studies on topics related to Sustainability and Circular Economy Business Development.

Table 2. Top 10 countries by number of publications.

Country	Number of Publications
Italy	58
Brazil	26
Germany	22
Netherlands	20
Spain	19
Sweden	18
UK	18
France	13
China	12

 doi:10.20944/preprints202406.1697.v1

Filand	10

Source: own elaboration

The publications were sorted out as follows: Environmental Science (89); Social Sciences (73); Energy (41); Business, Management and Accounting (29); Computer Science (27); Engineering (13); Economics, Econometrics and Finance (8); Psychology (3); Agricultural and Biological Sciences (3); Medicine (1); Mathematics (1); Earth and Planetary Sciences (1); Biochemistry, Genetics and Molecular Biology (1).

In Table 3 we analyze the Scimago Journal Rank (SJR), the best quartile and the H index by Business Strategy and the Environment with 3,67 (SJR), Q1, and H index 147.

There is a total of 18 publications in Q1, 1 publication in Q2, 3 publications Q3, 2 publications in Q4 and 1 publication without quartile information. Publications from best quartile Q1 represent 18,72%; best quartile Q2 represents 1,4%, best Q3 represents 3,12% and best Q4 represents 2.8% of each of the titles of 96 publications.

Finally, 1 publication without indexing data represent 1,4%. As shown in Table 3, most publications do have quartile Q1.

Table 3. Scimago Journal Rank (SJR).

Title	SJR	Best Quartile	H Index
Business Strategy And The Environment	3.67	Q1	147
Technological Forecasting And Social Change	3.12	Q1	179
Resources Conservation And Recycling	2.77	Q1	196
Current Opinion In Environmental Sustainability	2.51	Q1	122
Sustainable Development	2.28	Q1	91
Resources Conservation And Recycling Advances	2.03	Q1	21
Science Of The Total Environment	2.00	Q1	353
Environmental Impact Assessment Review	1.96	Q1	114
Journal Of Environmental Management	1.77	Q1	243
Waste Management	1.73	Q1	220
Journal Of Industrial Ecology	1.70	Q1	130
Urban Forestry And Urban Greening	1.62	Q1	117
Ecological Informatics	1.10	Q1	77
Environment And Urbanization	0.99	Q1	90
Environment Development And Sustainability	0.89	Q1	82
International Journal Of Environmental Research And Public Health	0.81	Q2	198
Smart And Sustainable Built Environment	0.78	Q1	28
Land	0.73	Q1	54
Sustainability Switzerland	0.67	Q1	169
Procedia CIRP	0.56	*	103
International Journal Of Sustainable Development And Planning	0.27	Q3	23
Revista Venezolana De Gerencia	0.23	Q3	15
International Journal Of Global Energy Issues	0.18	Q4	29
Natures Sciences Societes	0.17	Q3	22

 doi:10.20944/preprints202406.1697.v1

Socijalna Ekologija	0.15	Q4	11

**data not available.Source: own elaboration*

The most quoted article was "Barriers to the Circular Economy–integration of perspectives and domains [12], with 375 quotes published in Procedia CIRP (proceedings conference) 0,56 (SJR), and with H index (103), this paper identifies the barriers to a transition to the Circular Economy, which are financial, structural, operational, attitudinal and technological. The most cited article published in an academic journal is entitled "Designing business models in circular economy: A systematic literature review and research agenda [13] with 333 citations, published in the journal Business Strategy and the Environment, which registered 3,67 (SJR) the best quartile Q1 and with a H index (147).

In Figure 4 we can analyze citation changes for documents published until May 2024. The period 2014-2024 shows a positive net growth in citations with an R2 of 25%, reaching 1377 in 2023, with a cumulative total of 33,985 having been recorded in May of 2024.

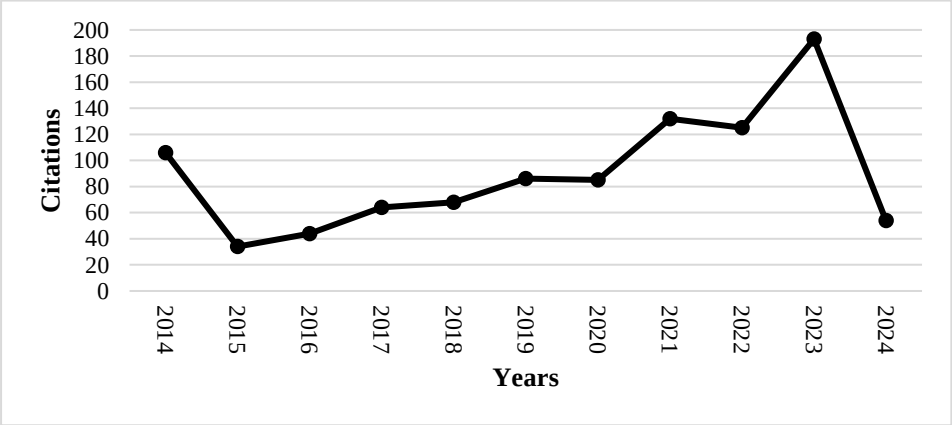

Figure 4. Evolution of citations between 2014 and 2024. **Source:** own elaboration.

The bibliometric analysis was conducted to explore and pinpoint metrics that reveal the patterns and development of scientific or academic content within documents, using principal keywords (Figure 5). In this visualization, we can observe most of the network nodes. The size of each node indicates the frequency of the associated keyword—that is, how often the keyword appears. Furthermore, the connections between the nodes indicate keyword co-occurrences, where keywords appear together.

The thickness of these links, meanwhile, highlights the frequency of these co-occurrences—essentially, how frequently the keywords are found together.

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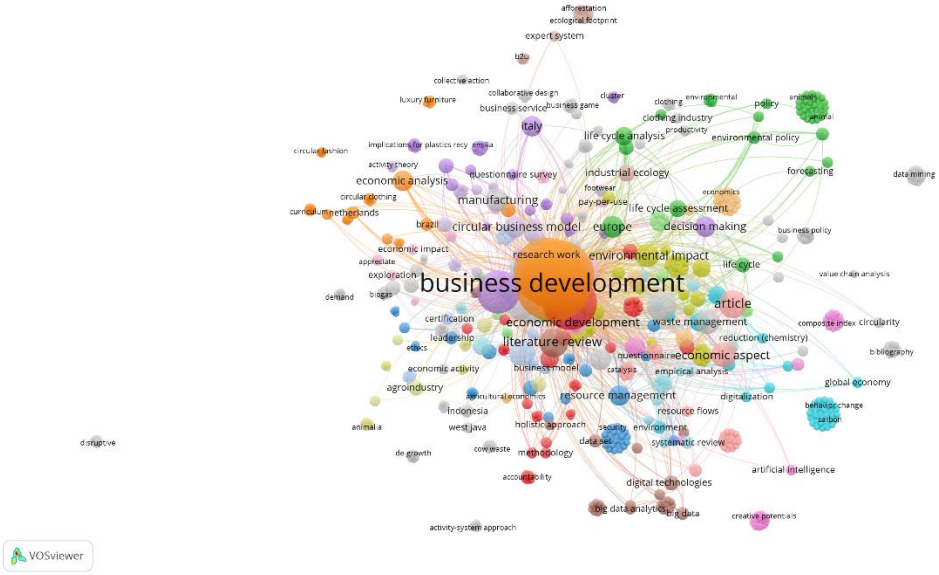

Figure 5. VOSviewer of all keywords network map. **Source**: Own Elaboration.

Each color represents a different thematic cluster, with nodes illustrating the subject matter of topics within a theme, and links showing the relationships between those topics under the same thematic umbrella. The analysis of this VOSviewer map of all keywords allows us to highlight an orange cluster with the words “business development”, the purple cluster encompasses the “circular economy” keywords and the green cluster includes all the keywords related to “sustainability”. The results were achieved through the use of the scientific software VOSviewer, specifically designed to target the keyword "Sustainability" AND "circular economy" AND "Business Development".

The study utilized scientific and academic documents focusing on this area. In Figure 6, we can analyze the connected keywords, which allows us to illustrate the network of keywords that co-occur in each scientific article. This analysis helps in identifying the subjects investigated by researchers and pinpointing emerging trends in future studies.

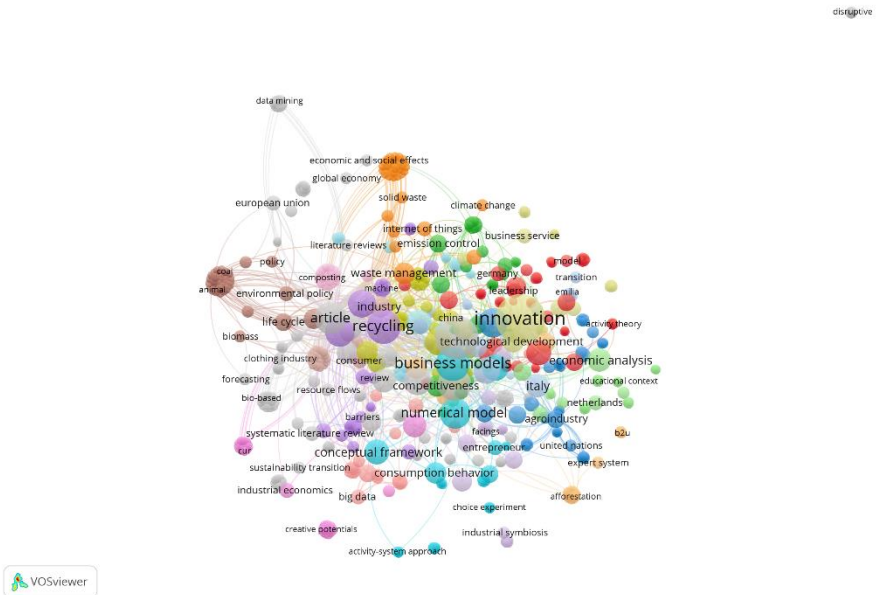

Figure 6. VOSviewer map of a network of Linked Keywords. **Source:** Own Elaboration.

 doi:10.20944/preprints202406.1697.v1

Lastly, Figure 7 displays an extensive bibliographic coupling based on the document analysis, facilitating interactive exploration of the co-citation network. This feature allows users to navigate through the network and uncover patterns within the 'competitive dynamics of strategic groups' across different authors.

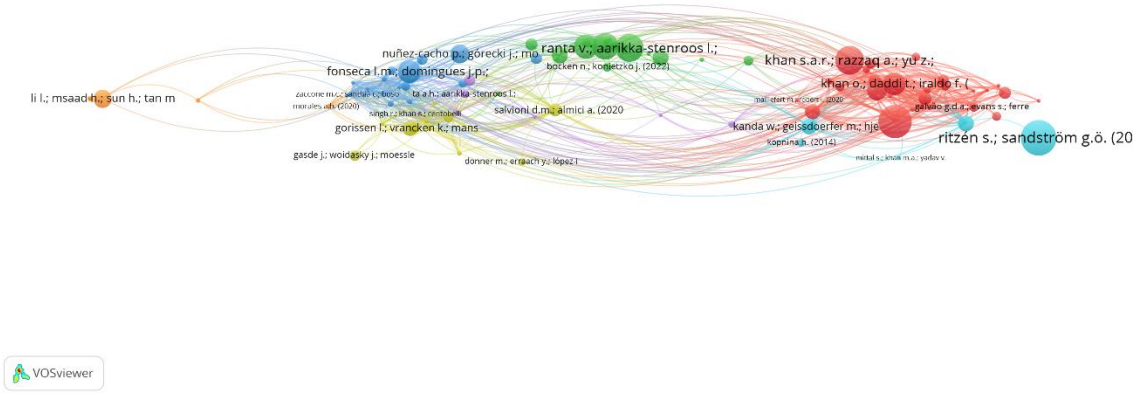

Figure 7. VOSviewer map of a network of co-citation. **Source:** Own Elaboration.

In Figure 7, it is possible to observe that there is a strong connection between the authors who study the themes of circular economy, business models and innovation, crossed with digital technologies.

In summary, the methodology selected for this study provided precision and ensured the availability of comprehensive data for other researchers interested in building upon this review and interested in this thematic. Moreover, by addressing key issues, the methodology enhanced coherence and improved the overall validity and reliability of the findings. Therefore, we assess that the established guidelines for systematic reviews and meta-analyses were adhered to, achieving a high methodological standard. We will discuss these aspects in further detail below.

4. Theoretical Perspectives

CE and sustainability principles significantly contribute to business development by promoting long-term economic viability while addressing environmental and social challenges. Sustainability focuses on meeting present needs without compromising the ability of future generations to meet their own needs [14]. This encourages businesses to adopt practices that minimize environmental impact and promote social equity. The CE complements this by advocating for the continuous use of resources through recycling, reusing, and remanufacturing, thereby reducing waste and conserving natural resources [15, 16]. When integrated, these approaches help businesses innovate, improve efficiency, and build resilience against resource scarcity and regulatory pressures. In addition, businesses that integrate sustainability and CE practices can enhance their brand reputation, meet consumer demand for responsible products, and achieve cost savings, thus driving overall business growth and competitiveness [17]. This literature review section explains the concepts of CE and sustainability, how they relate, the various strategies businesses can implement and challenges that may hinder optimal success.

 doi:10.20944/preprints202406.1697.v1

4.1. Definition of Concepts

4.1.1. Sustainability

The concept of sustainable development has gained massive popularity since its appearance in the Brundtland Report in 1987. This has primarily been driven by ongoing environmental and social issues, such as climate change, pollution, concerns over the depletion of natural resources and poverty [18]. As a result, sustainable development and sustainability concepts, which are often used interchangeably, are perceived as effective strategies for addressing these challenges. Considering the sustainability definition [19] as the ability to improve and sustain environmental, social, and economic systems for human development. In addition, the scholar also describes it as the "efficient and equitable distribution of resources intra-generationally and inter-generationally with the operation of socio-economic activities within the confines of a finite ecosystem" [19] (p.5). In this case, sustainability can be interpreted to refer to the capacity to maintain or improve the quality and longevity of life for current and future generations through balanced environmental, social, and economic practices [20]. It encompasses the principle of meeting present needs without compromising the ability of future generations to meet their own needs.

Sustainability involves three interconnected pillars: ecological/environmental stewardship, social equity, and economic viability. Environmental stewardship emphasizes the responsible management of natural resources, reduction of pollution, and protection of ecosystems [18] (Figure 8). Social equity involves empowering individuals and communities, eradicating poverty, and promoting cultural diversity. It ensures fair access to resources and opportunities, fostering community well-being and promoting justice and inclusivity. Economic viability focuses on creating resilient economic systems that support innovation, sustainable growth, and long-term financial stability [21]. Sustainability requires an integrative and systemic perspective, encouraging businesses, governments, and individuals to adopt practices that promote resource efficiency, reduce waste, and enhance the quality of life for all [22]. This approach aims to balance human development with the planet's ecological limits, fostering a harmonious relationship between nature and society.

Figure 8. Multidimensional conceptualization of sustainable development (Ruggerio, 2021).

4.1.2. Circular Economy

A circular economy (CE) is an economic system designed to eliminate waste and the continual use of resources by creating a closed-loop system where products, materials, and resources are reused, refurbished, remanufactured, and recycled. It aims to keep products and materials in use for as long as possible, extracting maximum value during their lifecycle and minimizing environmental impact [23, 24]. This approach involves designing products with durability, repairability, and recyclability in mind and implementing processes that support the return and regeneration of resources back into the production cycle. This practice is explained by indicating that circular

 doi:10.20944/preprints202406.1697.v1

business models include numerous strategic decisions aimed at preserving a product or service's environmental and economic value within the system [13]. Other study, indicate that this financial model replaces the "end of life" concept with a continuous lifecycle where value creation, transfer, and capturing are ongoing [25], as shown in Figure 9. As a result, CE decouples economic growth from resource consumption, thereby promoting resource efficiency and reducing dependency on finite resources.

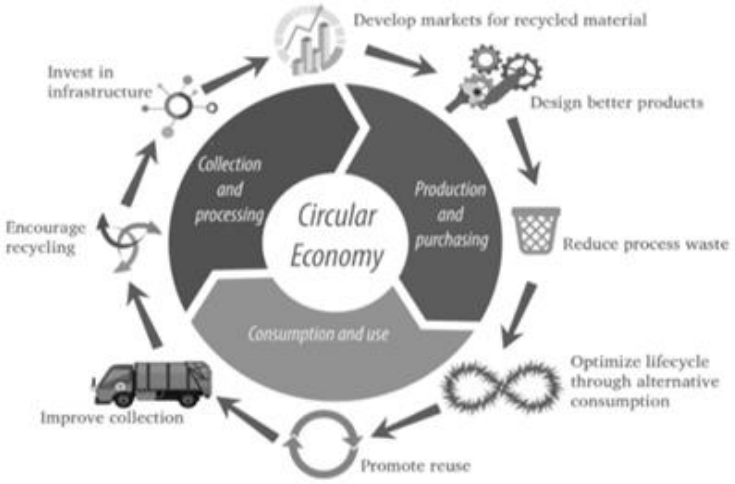

Figure 9. The circular economy model (Barbaritano et al., 2019) [25].

The adoption of CE has led to the development of new business models. Unlike the traditional linear economic models that primarily focus on sales transactions, CE encourages businesses to assess their pre- and post-production impacts [26]. This includes the effects of their business practices and products or services on the environment and communities served [27]. As a result, the paradigm shift towards circular business models requires companies to adjust their strategies and operations. CE also encourages innovation in business models, such as product-as-a-service and sharing platforms, which further support sustainable consumption and production patterns [28]. Ultimately, CE contributes to environmental sustainability, economic resilience, and social well-being by creating a regenerative system that benefits businesses, consumers, and the planet.

4.2. Theoretical Foundations

Various theoretical frameworks can help understand the impact of CE and sustainability on business development. These frameworks offer insights into how businesses can integrate environmental, social, and economic considerations into their operations. In addition, they guide on designing systems that promote resource efficiency, waste reduction, and the continuous reuse of materials. The main theories identified in this research are value-belief-norm theory and network theory.

4.2.1. Value-Belief-Norm theory

The value-belief-norm (VBN) theory is a psychological framework that explains how individuals' values, beliefs, and norms influence their environmental behaviors.

Other author's studies explain that values reflect the goals that people strive to achieve in life [29]. As a result, these values influence behaviors and preferences and are often manifested through specific attitudes, beliefs, and norms. In this regard, the VBN theory argues that personal values such as altruism, biospheric values, or self-interest shape a person's beliefs about environmental conditions and the consequences of those conditions. These beliefs, in turn, influence their awareness of the need to act, their perceived ability to make a difference, and their self-efficacy. In some cases, other authors, describe norms as the sense of moral obligation individuals feel to act based on their values and beliefs [30]. When individuals internalize these norms, they are more likely to engage in

 doi:10.20944/preprints202406.1697.v1

pro-environmental behaviors, such as supporting sustainability initiatives or adopting circular economy practices. VBN theory highlights the importance of aligning business strategies with the values and beliefs of stakeholders to foster a culture of sustainability within organizations and communities.

4.2.2. Network Theory

Network theory is a framework that examines the relationships and interactions within a network of interconnected entities, such as individuals, organizations, or systems. It focuses on how these connections influence behavior, information flow, and resource exchange. For instance , other author, identifies the impact of relationships on people's behavior as a major principle of network theory [31]. In this regard, the researcher argues that an individual's behaviors can be best predicted through the web of relationships they are embedded in rather than their demographic characteristics, motivations, or attitudes. Network theory can be used in the context of business development and sustainability to understand how businesses, suppliers, customers, regulatory bodies, and other stakeholders interact and collaborate to achieve sustainable outcomes. It has been explained that it helps map and analyze these networks, thereby allowing businesses to identify key influencers, optimize supply chain relationships, and foster partnerships that enhance resource efficiency and innovation [32]. Network theory also emphasizes the importance of strong, resilient connections and the role of networks in spreading best practices. Other studies indicated that networking brings stakeholders together and creates opportunities for information sharing, communication, and knowledge transfer [33]. These practices foster collective action and drive systemic change towards a circular economy. Therefore, the network perspective helps businesses leverage their networks to create value, share knowledge, and implement sustainable practices more effectively.

4.3. The Relationship between Circular Economy and Sustainability

CE and sustainability are intrinsically linked, as both concepts aim to create systems that support long-term ecological balance, economic resilience, and social well-being. [34] identify CE as a model implemented to support sustainable development. For instance, CE operationalizes sustainability by emphasizing the continuous use of resources and the minimization of waste through closed-loop systems [35, 36]. This approach directly addresses the environmental pillar of sustainability by reducing the extraction of raw materials and the generation of waste, which lessens the ecological footprint of economic activities. Zaccone et al. [34] (p.2) explain that one of the major questions driving the sustainability concept is "What kind of world do we want to leave to those who come after us?" CE addresses this question by encouraging the designing of products and processes that facilitate reuse, repair, remanufacture, and recycling. This circular business model ensures that resources are kept in use for as long as possible, consequently aligning with the sustainable principle of conserving natural resources for future generations.

CE also enhances the economic and social pillars of sustainability. Economically, it promotes resilience by reducing dependency on finite resources and mitigating the risks associated with resource scarcity and price volatility [37]. Businesses adopting circular practices can achieve cost savings through more efficient resource use and create new revenue streams through innovative business models such as leasing, sharing, and product-as-a-service. These models generate economic value and provide consumers with more sustainable and cost-effective options [38, 39]. CE contributes to social sustainability by facilitating job creation and community development. Some author studies, [34], indicate that circular business models aim to be more inclusive and participative through activities such as stakeholder and customer engagement through the value co-creation processes. In addition, collaborative consumption models in CE enhance access to resources for people and communities who previously had limited or no access to them [40]. They can enjoy products or services without owning them, thereby enhancing access and affordability. CE supports a transition to more sustainable forms of employment in sectors like recycling, remanufacturing, and sustainable design, contributing to economic inclusion and social equity [41]. The increased emphasis

 doi:10.20944/preprints202406.1697.v1

on local production and consumption cycles also strengthens community ties and supports local economies.

4.4. Business Strategies for a Sustainable Circular Economy

Businesses can implement multiple strategies to transition to a sustainable circular economy. Each of these strategies can be tailored to address various aspects of sustainability, from environmental to social and economic. This section explains the main strategies identified in the research.

4.4.1. Business Model Transformation

Achieving a sustainable circular economy requires businesses to transition from traditional business models to circular business models. This procedure involves implementing systems and operations that support the circularity emphasized in CE [42]. Traditional linear models are increasingly unsustainable due to their reliance on finite resources and the generation of significant waste. Circular business models aim to address this challenge by creating systems where resources are used more efficiently, waste is minimized, and products are designed for longevity [43]. These models are defined, [44], as the strategies companies use to create, capture, and deliver value across their value chains. These approaches improve resource efficiencies through practices such as life-long designs, product remanufacturing and repairing, and closing material loops. Therefore, the transformation of business models addresses environmental concerns, opens new economic opportunities, and enhances resilience against resource scarcity and market fluctuations. The various innovative approaches related to this transformation include the sharing economy, closed-loop supply chains, and product life extension.

The sharing economy represents a shift from individual ownership to collective use of resources, maximizing their utilization and reducing the need for new products. Businesses that facilitate the shared use of assets like vehicles, tools, and living spaces through digital platforms and peer-to-peer networks can promote sustainable consumption patterns [45, 46]. These practices decrease the environmental impact of traditional ownership models and improve community engagement. Closed-loop supply chains are another critical aspect of business model transformation [47]. These supply chains integrate forward and reverse logistics to ensure that products and materials are reused, refurbished, remanufactured, or recycled at the end of their lifecycle. This approach reduces reliance on virgin raw materials and minimizes waste [48, 49]. By closing the loop, businesses can lower production costs, mitigate supply chain risks, and enhance their sustainability credentials [50]. Product life extension focuses on prolonging the useful life of products through design, maintenance, repair, and refurbishment. In this case, businesses create durable, upgradeable, and repairable products, thereby reducing the frequency of replacements and the environmental impact of production and disposal [51]. For example, brands may adopt strategies to extend product lifespans by offering repair services, spare parts, and user-friendly repair manuals. This strategy conserves resources and reduces waste. It also builds customer loyalty and creates new business opportunities centered around maintenance, repair services, and second-hand markets.

4.4.2. Technological Integration

Technological integration enables businesses to innovate and optimize processes for resource efficiency, waste reduction, and improved sustainability outcomes. Companies can leverage cutting-edge technologies to enhance their operations, create new business models, and foster greater transparency and accountability in their supply chains [52]. Digitization and Industry 4.0 are revolutionizing the way businesses operate and driving the transition towards a circular economy [53, 54]. Industry 4.0 technologies, including the Internet of Things (IoT), artificial intelligence (AI), and big data analytics, are central to this transformation. For instance, IoT devices enable real-time monitoring and management of resource use, tracking products throughout their lifecycle and providing critical data on product performance and maintenance needs [55, 56]. This connectivity

 doi:10.20944/preprints202406.1697.v1

allows businesses to implement predictive maintenance, reducing downtime and extending the life of machinery and products [57]. In addition, AI and machine learning analyze vast amounts of data to optimize production processes, enhance product design, and improve supply chain efficiency. This reduces waste and maximizes resource utilization. Big data analytics offer insights into consumption patterns and resource flows. These tools help companies identify opportunities for reducing waste, improving recycling processes, and designing more sustainable products [58]. Integrating these technologies enables businesses to create smarter, more efficient, and sustainable operations aligned with the principles of a circular economy.

Green technologies and innovations are critical in supporting sustainable circular economy practices. These technologies focus on reducing environmental impact, conserving resources, and promoting renewable energy use [59]. Advanced manufacturing technologies, such as 3D printing and additive manufacturing, enable the production of complex, customized products with minimal material waste. They support on-demand manufacturing and reduce the need for large inventories [60, 61]. In addition, these innovations also facilitate the use of recycled materials in new products, closing the loop in material use. Renewable energy technologies, including solar, wind, and bioenergy, reduce the carbon footprint of production processes and contribute to more sustainable resource management. Innovations in energy storage and smart grid technologies further enhance the efficiency and reliability of renewable energy systems. According to some authors, green chemistry and sustainable materials innovation focus on developing eco-friendly materials and processes that minimize toxic substances and environmental harm [62]. The continuous adoption of green technologies and innovation will significantly contribute to a more sustainable and resilient circular economy.

4.4.3. Sustainable Supply Chain Management

Sustainable supply chain management ensures that sustainability principles are integrated into every stage of the supply chain, from raw material sourcing to product end-of-life. This approach minimizes environmental impact and enhances economic efficiency and social responsibility [63]. It contributes to a more sustainable and resilient business model. One major foundational aspect of sustainable supply chain management is ethical sourcing and procurement Lambrechts [64] (p.405) defines ethical sourcing as "sourcing the materials, products and services an organization needs from its suppliers in an ethical and socially responsible way, whether the focal organization is formally accountable or not." This involves selecting suppliers based on their environmental and social practices and ensuring that raw materials are sourced responsibly and sustainably. Businesses can establish criteria for supplier selection that include environmental certifications, fair labor practices, and minimal ecological footprints [65]. Working closely with suppliers can help them promote sustainable practices throughout the supply chain, ensuring that materials are extracted and processed in ways that do not harm the environment or exploit workers [66]. Transparent and ethical sourcing enhances the sustainability of the supply chain and builds trust and credibility with consumers and stakeholders.

Circular procurement and material management are integral to creating a closed-loop supply chain. This involves prioritizing the purchase of recycled, refurbished, and remanufactured materials, as well as designing durable, repairable, and recyclable products [67]. Companies can implement take-back schemes and product-as-a-service models to ensure that products and materials are returned at the end of their life cycle and reintegrated into the production process [68, 69]. Effective material management also includes optimizing inventory levels to reduce waste and implementing recycling programs within the supply chain. Therefore, the adoption of circular procurement practices can significantly reduce waste, conserve natural resources, and create a more sustainable supply chain.

Green logistics and transportation focus on minimizing the environmental impact of moving goods through the supply chain. This can be achieved by optimizing routes, using energy-efficient vehicles, and adopting alternative fuels [70, 71]. Implementing smart logistics systems, such as IoT-enabled tracking and data analytics, allows businesses to reduce fuel consumption, lower emissions,

 doi:10.20944/preprints202406.1697.v1

and improve delivery efficiency [72]. In addition, companies can explore modal shifts, such as increasing the use of rail or water transport instead of road transport, to further reduce carbon footprints [73, 74]. Businesses that prioritize green logistics contribute to a reduction in greenhouse gas emissions and enhance overall supply chain sustainability.

4.4.4. Consumer Education and Engagement

Consumers play a significant role in innovation processes and participation in value creation and innovation integration is crucial [75]. In addition, the scholars note the impact of consumer behaviors on demand and, consequently, production processes. The success of CE models is hugely dependent on consumers' willingness to participate in activities such as collaborative consumption and sharing [76, 77]. Therefore, consumer education and engagement are essential strategies for advancing a sustainable circular economy. Businesses can foster a culture of sustainability that extends beyond the company itself by educating consumers about the environmental impacts of their purchasing decisions and engaging them in sustainable practices [78, 79]. This approach promotes responsible consumption and helps build brand loyalty and trust among consumers who are increasingly concerned about environmental issues.

Raising consumer awareness about the principles of a circular economy and the importance of sustainability is the first step towards meaningful engagement. Businesses can utilize various communication channels, such as social media, websites, and in-store displays, to inform consumers about the benefits of sustainable products and practices [75, 80]. Educational campaigns can highlight the lifecycle of products, from production to disposal, and the environmental benefits of choosing circular products [81]. For example, companies can share information on how their products are made from recycled materials or how they can be returned and repurposed at the end of their life cycle. With these practices of increasing consumer knowledge, businesses can empower customers to make informed decisions that support sustainability.

Encouraging sustainable consumption involves promoting behaviors and choices that align with the principles of a circular economy. Businesses can introduce incentives for consumers to participate in recycling programs, return used products, or choose eco-friendly alternatives [82, 83]. For example, offering discounts or rewards for returning used items can motivate consumers to engage in take-back schemes and contribute to the circular flow of materials. In addition, other studies indicate that companies can promote the benefits of sharing, leasing, and renting products rather than owning them [84]. This can reduce overall consumption and waste and make sustainable choices more attractive and accessible. As a result, businesses can drive a shift towards more responsible consumption patterns.

Engaging consumers in the co-creation of sustainable products and services can enhance their commitment to circular economy practices. Businesses can involve consumers in the design process by soliciting feedback and ideas on product features, sustainability improvements, and end-of-life options [85, 86]. Crowdsourcing platforms and collaborative workshops can be used to gather consumer input and foster a sense of ownership and participation [87]. Actively involving consumers can empower companies to create products that better meet their needs and preferences while also incorporating sustainable features [88]. This collaborative approach improves product design and strengthens the relationship between businesses and consumers, fostering loyalty and advocacy.

4.4.5. Sustainable Marketing and Branding

Sustainable marketing and branding are essential strategies for promoting a circular economy. These approaches help businesses to communicate their commitment to sustainability and influence consumer perceptions and behaviors towards more environmentally responsible choices [89]. Companies should align their marketing efforts with sustainable values to differentiate themselves in the marketplace, build brand loyalty, and drive the adoption of circular economy principles. Effective communication of sustainability initiatives is crucial for building trust and transparency with consumers [90]. Businesses can use various marketing channels, such as social media, websites, and advertising, to highlight their sustainability efforts. This includes sharing information about the

 doi:10.20944/preprints202406.1697.v1

use of recycled materials, energy-efficient production processes, waste reduction initiatives, and circular product designs [91]. Transparency about the environmental impact and benefits of these initiatives can enhance consumer trust and demonstrate the company's commitment to sustainability. Storytelling can be a powerful tool in this regard, as it allows businesses to convey the journey and impact of their sustainability efforts in a relatable and engaging manner.

Building a sustainable brand identity involves integrating sustainability into the core values and mission of the company. This can be reflected in the brand's messaging, visual identity, and overall positioning in the market [92]. A strong, sustainable brand identity communicates a commitment to the environment, society, and economic growth. Companies can highlight their dedication to sustainability through their logos, packaging, and product design, ensuring that every aspect of the brand aligns with sustainable principles [93, 94]. Consistently promoting this identity can attract environmentally conscious consumers and establish a company as the leader in the circular economy.

Ethical marketing practices are essential for promoting sustainability without misleading consumers. This includes avoiding greenwashing, where companies make false or exaggerated claims about their environmental practices [95]. Instead, businesses should ensure that their sustainability claims are accurate, substantiated, and transparent. Third-party certifications and eco-labels can provide credibility and assurance to consumers about the sustainability of products and practices [96]. In addition, adhering to ethical marketing standards can help companies build long-term trust and loyalty with their customers, who increasingly demand honesty and integrity in brand communications.

4.5. Barriers to the Adoption of a Sustainable Circular Economy

The transition towards CE is characterized by various challenges that businesses must navigate to realize full potential. These range from technical problems to economic, regulatory, and organizational issues. They present barriers to the adoption of sustainable practices and circular business models.

4.5.1. Economic and Financial Barriers

Economic and financial barriers refer to challenges related to the costs and financial implications of adopting sustainable practices. One major barrier is the perceived higher upfront costs associated with sustainable technologies, materials, and processes compared to conventional alternatives [97, 98]. Businesses may hesitate to invest in sustainability initiatives due to concerns about profitability and return on investment, especially in industries with thin profit margins or high competition. In addition, financial constraints, such as limited access to capital or financing options for sustainability projects, can hinder investment in sustainable practices [99]. Businesses may face challenges in accurately measuring and quantifying the financial benefits of sustainability [100]. This makes it difficult to justify investments to stakeholders.

4.5.2. Organizational and Cultural Issues

Organizational and cultural issues encompass internal barriers within businesses that hinder the adoption of sustainable practices. Resistance to change within organizational cultures can pose significant challenges, particularly in industries with deeply entrenched traditional practices and mindsets [12, 101]. Some authors, [102] note that a lack of awareness, understanding, and buy-in from employees at all levels of the organization can impede progress towards sustainability goals. Organizational silos and conflicts of interest between different departments or stakeholders pose another major challenge [82, 103]. Moreover, [104] note the absence of clear leadership and accountability for sustainability within organizations can result in a lack of prioritization and integration of sustainability into business strategies and operations. These concerns may hinder collaboration and coordination in implementing sustainability initiatives.

4.5.3. Regulatory and Policy Challenges

 doi:10.20944/preprints202406.1697.v1

Inadequate or inconsistent government regulations and policies related to sustainability result in significant regulatory and policy challenges. In some cases, existing rules may not adequately address environmental or social issues or may incentivize unsustainable practices through subsidies or tax breaks [105, 106]. Conversely, strict regulations and compliance requirements may impose additional costs and administrative burdens on businesses, especially small and medium-sized enterprises (SMEs) with limited resources [107, 108]. Regulatory uncertainty or frequent changes in environmental laws and standards can create dilemmas and reluctance among businesses to invest in sustainable practices [57]. Lack of enforcement mechanisms and penalties for non-compliance may also undermine the effectiveness of regulations in driving sustainable behavior.

4.5.4. Technological Challenges

Some businesses experience technological challenges that include barriers related to the availability, scalability, and maturity of sustainable technologies and innovations. One major challenge is the lack of commercially viable and proven technologies for certain sustainability goals, such as achieving carbon neutrality or eliminating waste streams [109, 110]. Businesses may hesitate to adopt new technologies due to concerns about reliability, performance, and compatibility with existing infrastructure and systems. The high costs of implementing and maintaining sustainable technologies, particularly in industries with long asset lifecycles, can deter investment [12]. Moreover, technological limitations, such as the lack of adequate recycling or waste management infrastructure, may constrain the feasibility of circular economy initiatives in certain regions or industries [111]. Addressing technological challenges requires ongoing research, development, and collaboration between businesses, academia, and government agencies to drive innovation and overcome barriers to adoption.

5. Conclusions

The concepts of CE and sustainability have attracted the attention of researchers, governments, and activists across the world. This has resulted from the intensifying environmental issues, including severe climate changes and pollution, which have prompted the implementation of sustainable initiatives. Sustainability emphasizes the need to balance economic growth with ecological resilience and social inclusiveness. CE, as a sustainable initiative, contributes to these pillars of sustainable development in various ways. For instance, CE highlights the need for circular business models that encourage designing products that can be reused, remanufactured, or repaired. This extended life cycle aims to reduce waste that often results in pollution and consequent environmental impacts. In addition, CE includes collaborative consumption models, which encourage consumers to share products or services instead of owning them. Such a strategy maximizes the use of a product or service while, at the same time, it enhances equal access to resources. For example, an individual who previously could afford a product can access it through shared programs at a lower price. Activities such as remanufacturing lowers production costs due to reduced need for new raw materials. It also slows the exploitation of natural resources. These aspects show the various ways CE and sustainability are connected.

Businesses can implement sustainability and CE approaches to improve their competitiveness and overall business performance. However, achieving optimal results requires them to implement appropriate strategies. For example, they should adopt new circular business models to improve resource efficiency, extend product life cycles, and implement closed-loop supply chains. Another effective strategy is to integrate technologies such as IoT, AI, big data analytics, and renewable energy innovations. This strategy can help enhance operational efficiency and improve the company's ability to achieve the desired sustainability goals. For instance, IoT devices can be used to monitor products throughout the lifecycles to ensure a smooth transition from the traditional linear model to the circular model. Other strategies include implementing sustainable supply chain strategies, consumer education and engagement, and sustainable marketing and branding. These approaches can help ensure ethical and sustainable sourcing and consumer participation throughout the value creation processes. Finally, sustainable marketing allows firms to show their commitment to sustainability

 doi:10.20944/preprints202406.1697.v1

through their branding and marketing communications. However, the effectiveness of these strategies can be affected by various challenges, such as high costs and financial implications of adopting sustainable innovations, especially for SMEs with limited resources. Other challenges include regulatory uncertainties, technological issues, and organizational and cultural problems. Businesses looking to leverage sustainable CE guidelines must establish ways to overcome these issues.

Sustainability and Circular Economy are two interconnected concepts that have increasingly influenced business development theories and practices: (i) Businesses adopt models such as product-as-a-service, sharing platforms, product life extension, and resource recovery to minimize waste and maximize resource use efficiency; (ii) Companies focus on greening their supply chains by sourcing responsibly, reducing carbon footprints, and ensuring ethical labor practices, thus contributing to overall sustainability; (iii) Businesses integrate social and environmental concerns in their operations and interactions with stakeholders, going beyond mere compliance to proactive sustainability initiatives; (iv) Products are designed with sustainability in mind, using eco-friendly materials, energy-efficient processes, and considering end-of-life recycling or disposal; (v) Financial markets are increasingly favoring investments in companies that demonstrate strong environmental, social, and governance performance, encouraging sustainable business practices; (vi) Businesses promote products and services based on their environmental benefits, appealing to the growing consumer preference for sustainability; (vi) Governments and international organizations are developing policies to promote circular practices, such as extended producer responsibility, recycling targets, and waste management regulations.

By adopting these theories and practices, businesses can contribute to a more sustainable and circular economy, ensuring long-term viability and positive environmental and social impacts.

Exploring future lines of investigation in Sustainability and Circular Economy business development involves delving into emerging trends, innovative technologies, and evolving theoretical frameworks: (i) Investigate how IoT can optimize resource usage, enhance product tracking, and facilitate real-time data collection for better decision-making in circular processes. IoT-enabled systems can support predictive maintenance, extend product lifespans, and improve recycling efficiency; (ii) Explore AI and ML applications in predictive analytics for resource management, waste reduction, and process optimization in circular business models. AI-driven insights can help in designing more sustainable products, optimizing supply chains, and enhancing energy efficiency; (iii) Assess the role of blockchain in ensuring transparency, traceability, and trust in circular supply chains. Blockchain can facilitate secure and transparent transactions, track product life cycles, and verify sustainable practices.

Future research in sustainability and circular economy business development should focus on leveraging advanced technologies, innovating business models, understanding consumer behavior, and developing robust metrics and policies. By addressing these areas, businesses can better navigate the transition to a more sustainable and circular economy, creating long-term value for society and the environment

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Appendix A

Table A1. Overview of document citations period ≤2014 to 2024.

Documents	Year	≤2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Assessing the environmental impacts of pr…	2024	0	0	0	0	0	0	0	0	0	0	1	1
Life cycle thinking for the assessment of wa…	2024	0	0	0	0	0	0	0	0	0	0	1	1
Exploring circular economy in the cosmetic…	2024	0	0	0	0	0	0	0	0	0	0	3	3
The green to circular bioeconomy transitio…	2023	0	0	0	0	0	0	0	0	0	2	1	3
Data mining techniques for the investigatio…	2023	0	0	0	0	0	0	0	0	0	1	2	3
Monitoring circular biobased economy – Sy…	2023	0	0	0	0	0	0	0	0	0	1	5	6
Drivers and barriers for circular business m…	2023	0	0	0	0	0	0	0	0	0	3	17	20
Circular Business Model Value Dimension …	2023	0	0	0	0	0	0	0	0	0	2	2	4
Environmental assessment of the rental bu…	2023	0	0	0	0	0	0	0	0	0	2	4	6
Decarbonization in waste recycling industry…	2023	0	0	0	0	0	0	0	0	0	20	28	48
Assessing non-hazardous solid waste busin…	2023	0	0	0	0	0	0	0	0	0	2	5	7
Opportunities and risks of internet of thing…	2023	0	0	0	0	0	0	0	0	0	14	15	29
The Role of Consumers in Business Model …	2023	0	0	0	0	0	0	0	0	0	1	1	2
Investigating the Serially Mediating Mecha…	2023	0	0	0	0	0	0	0	0	0	3	4	7
The impact of internal company dynamics …	2023	0	0	0	0	0	0	0	0	0	6	7	13
Levers for a corporate transition to a plastic…	2023	0	0	0	0	0	0	0	0	0	4	1	5
Innovative Business Models for a Sustainab…	2023	0	0	0	0	0	0	0	0	0	4	2	6
Green Innovation in Small and Medium-Siz…	2023	0	0	0	0	0	0	0	0	0	6	4	10
Sustainable Business Model Design: A Mult…	2023	0	0	0	0	0	0	0	0	0	3	5	8
What Circular economy indicators really me…	2023	0	0	0	0	0	0	0	0	0	10	15	25

 doi:10.20944/preprints202406.1697.v1

Motivations and identities of “grassroots” c…	2023	0	0	0	0	0	0	0	0	1	16	7	24
Clearing the fog: How circular economy tra…	2023	0	0	0	0	0	0	0	0	0	8	5	13
Exploring sustainable logistics practices to…	2023	0	0	0	0	0	0	0	0	0	10	8	18
Navigating value networks to co-create sust…	2023	0	0	0	0	0	0	0	0	0	4	2	6
Investigating the Interplay between Social P…	2022	0	0	0	0	0	0	0	0	0	4	0	4
Circular business model innovation in cons…	2022	0	0	0	0	0	0	0	0	0	11	14	25
Blockchain-based recycling and its impact …	2022	0	0	0	0	0	0	0	0	3	22	11	36
Implementing Circular-Bioeconomy Princi…	2022	0	0	0	0	0	0	0	0	0	3	1	4
Circular bioeconomy for olive oil waste and…	2022	0	0	0	0	0	0	0	0	1	6	12	19
Independent User Circular Behaviors and T…	2022	0	0	0	0	0	0	0	0	0	2	2	4
From Linear to Circular Ideas: An Educatio…	2022	0	0	0	0	0	0	0	0	0	1	2	3
Barriers to access-based consumption in th…	2022	0	0	0	0	0	0	0	0	0	5	7	12
The collaborative and contested interplay b…	2022	0	0	0	0	0	0	0	0	1	9	4	14
Value creation in circular economy busines…	2022	0	0	0	0	0	0	0	0	4	27	20	51
Making Hospitals Sustainable: Towards Gre…	2022	0	0	0	0	0	0	0	0	1	3	4	8
Circular business model: Breaking down ba…	2022	0	0	0	0	0	0	0	0	4	13	9	26
Disruptive innovation and circularity in star…	2022	0	0	0	0	0	0	0	0	6	3	13	22
How Hybrid Organizations Adopt Circular …	2022	0	0	0	0	0	0	0	0	3	2	1	5
Investigating Business Potential and Users' …	2022	0	0	0	0	0	0	0	0	3	2	5	10
Towards Circular Economy for More Sustai…	2022	0	0	0	0	0	0	0	0	5	11	7	23
Customer Experience in Circular Economy: …	2022	0	0	0	0	0	0	0	0	6	9	6	21
Management control and business model i…	2022	0	0	0	0	0	0	0	0	1	4	0	5
Antecedents of absorptive capacity in the d…	2022	0	0	0	0	0	0	0	0	9	23	9	41
An industrial symbiosis simulation game: E…	2021	0	0	0	0	0	0	0	0	4	2	4	10
Industry 4.0 and circular economy practices…	2021	0	0	0	0	0	0	0	2	75	108	55	240

 doi:10.20944/preprints202406.1697.v1

Circular economy: A review from business …	2021	0	0	0	0	0	0	0	0	1	2	1	4
A framework for the adoption of green busi…	2021	0	0	0	0	0	0	0	4	3	3	4	14
Can fashion be circular? A literature review …	2021	0	0	0	0	0	0	0	1	8	24	9	42
Remanufacturing for circular economy: Un…	2021	0	0	0	0	0	0	0	0	1	0	1	2
Which region and which sector leads the ci…	2021	0	0	0	0	0	0	0	1	5	11	3	20
Circular economy, the transition of an incu…	2021	0	0	0	0	0	0	0	1	5	13	3	22
Assessing people-driven factors for circular …	2021	0	0	0	0	0	0	0	1	16	22	13	52
Life cycle assessment to ensure sustainabili…	2021	0	0	0	0	0	0	0	0	6	2	3	11
Towards a business analytics capability for t…	2021	0	0	0	0	0	0	0	4	21	29	21	75
From circular business models to circular b…	2021	0	0	0	0	0	0	0	1	14	32	29	76
Recycling technology innovation as a sourc…	2021	0	0	0	0	0	0	0	1	2	6	0	9
The business model in sustainability transit…	2021	0	0	0	0	0	0	0	3	3	17	7	30
Accentuating the interconnection between …	2021	0	0	0	0	0	0	0	2	7	11	11	31
How to innovate business models for a circ…	2021	0	0	0	0	0	0	0	5	17	34	18	74
A systems representation of the Circular Ec…	2021	0	0	0	0	0	0	0	1	9	9	6	25
An overview of the transition to a circular e…	2021	0	0	0	0	0	0	0	0	5	6	2	13
Socio-economic and cultural effects of disr…	2021	0	0	0	0	0	0	0	5	15	4	4	28
Plastics recycling with tracer-based-sorting:…	2021	0	0	0	0	0	0	0	3	13	14	5	35
Determinants of consumer demand for circ…	2021	0	0	0	0	0	0	0	5	9	18	11	43
Digital technologies catalyzing business m…	2021	0	0	0	0	0	0	1	26	68	86	55	236
Green innovation and business sustainabili	2020	0	0	0	0	0	0	0	12	27	38	23	100
European environment policy for the circul…	2020	0	0	0	0	0	0	1	12	29	45	26	113
Transitioning toward a circular economy: T…	2020	0	0	0	0	0	0	1	7	16	16	13	53
Exploring paradoxical tensions in circular b…	2020	0	0	0	0	0	0	0	0	1	4	1	6
Organizational transition management of c…	2020	0	0	0	0	0	0	1	13	20	23	20	77

 doi:10.20944/preprints202406.1697.v1

Digitally-enabled sustainable supply chains …	2020	0	0	0	0	0	0	6	24	52	60	30	172
Stakeholders, innovative business models f…	2020	0	0	0	0	0	0	5	30	56	77	48	216
Systemic design for policy-making: Toward…	2020	0	0	0	0	0	0	2	3	5	7	3	20
Designing business models in circular econ…	2020	0	0	0	0	0	0	19	68	70	106	70	333
New business models and sustainability. Ill…	2020	0	0	0	0	0	0	0	0	0	0	1	1
Eco-holonic 4.0 circular business model to …	2020	0	0	0	0	0	0	1	5	8	8	3	25
Microfoundations of dynamic capabilities: I…	2020	0	0	0	0	0	0	7	25	39	61	25	157
Suffciency business strategies in the food i…	2020	0	0	0	0	0	0	0	15	9	10	3	37
Eco-innovations for sustainable development	2020	0	0	0	0	0	0	0	0	0	1	0	1
Insects for sustainable animal feed: inclusiv…	2019	0	0	0	0	0	2	11	23	22	34	9	101
Sustainability and quality management in t…	2019	0	0	0	0	0	1	1	9	15	7	3	36
The Stakeholders' perspective within the B c…	2019	0	0	0	0	0	2	5	9	4	8	10	38
Assessment of circular economy within Por…	2018	0	0	0	0	4	18	17	48	32	21	12	152
What gets measured, gets done: Developm…	2018	0	0	0	0	9	8	16	28	26	13	14	114
Expanding roles for the Swedish waste man…	2017	0	0	0	1	5	10	13	14	12	20	3	78
Barriers to the Circular Economy - Integrati…	2017	0	0	0	2	16	32	53	67	79	72	54	375
Transition thinking and business model inn…	2016	0	0	0	3	7	7	11	14	9	10	8	69
	Total	0	1	4	8	42	82	172	493	889	1377	917	33985

References

1. Pieroni, M. P., McAloone, T. C., and Pigosso, D. C. Business model innovation for circular economy and sustainability: A review of approaches. *Journal of cleaner productio*n **2019**, *215,* 198-216. https://doi.org/10.1016/j.jclepro.2019.01.036.
2. Awan, U., & Sroufe, R. Sustainability in the circular economy: insights and dynamics of designing circular business models. *Applied Sciences* **2022**, *12*(3), 1521. https://doi.org/10.3390/app12031521.
3. Tapaninaho, R., and Heikkinen, A. Value creation in circular economy business for sustainability: A stakeholder relationship perspective. *Business Strategy and the Environment* **2022,** 31(6), 2728-2740. https://doi.org/10.1002/bse.3002.
4. Berg, V., Birkeland, J., Pappas, I. O., and Jaccheri, L. The role of data analytics in startup companies: Exploring challenges and barriers. In *Conference on e-Business, e-Services and e-Society* **2018**, 205-216. Cham: Springer International Publishing. ff10.1007/978-3-030-02131-3_19ff.
5. Velenturf, A. P., and Purnell, P. Principles for a sustainable circular economy. *Sustainable Production and Consumption* **2021**,*27*, 1437-1457. https://doi.org/10.1016/j.spc.2021.02.018.

6. Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... and Moher, D. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *Bmj*, **2021**, *372*. doi:https://doi.org/10.1136/bmj.n71
7. Regona, M., Yigitcanlar, T., Xia, B., and Li, R. Y. M. Opportunities and adoption challenges of AI in the construction industry: A PRISMA review. *Journal of open innovation: technology, market, and complexity*, **2022**, *8*(1), 45. https://doi.org/10.3390/joitmc8010045.
8. Rosário, A. T., Lopes, P. R., and Rosário, F. S. Metaverse in Marketing: Challenges and Opportunities. In A. Khang, V. Shah, and S. Rani (Eds.), Handbook of Research on AI-Based Technologies and Applications in the Era of the Metaverse, **2023**, (pp. 204-227). IGI Global. https://doi.org/10.4018/978-1-6684-8851-5.ch010.
9. Rosário, A.T. and Dias, J.C. The New Digital Economy and Sustainability: Challenges and Opportunities. *Sustainability*, **2023,** *15*, 10902. https://doi.org/10.3390/su151410902.
10. Rosário, T. A., Moreira, A. C., and Macedo, P. Dinámica competitiva de los grupos estratégicos en la industria bancaria portuguesa. *Cuadernos De Gestión***,** **2021**, *21*(2), 119–133. https://doi.org/10.5295/cdg.180975ac.
11. Haddaway, N. R., Page, M. J., Pritchard, C. C., and McGuinness, L. A. PRISMA 2020: An R package and Shiny app for producing PRISMA 2020-compliant flow diagrams, with interactivity for optimised digital transparency and Open Synthesis. *Campbell systematic reviews* **2022**, *18*(2), e1230. https://doi.org/10.1002/cl2.1230.
12. Ritzén, S., and Sandström, G. Ö. Barriers to the Circular Economy–integration of perspectives and domains. *Procedia Cirp* **2017,** *64*, 7-12. https://doi.org/10.1016/j.procir.2017.03.005.
13. Centobelli, P., Cerchione, R., Chiaroni, D., Del Vecchio, P., and Urbinati, A. Designing business models in circular economy: A systematic literature review and research agenda. *Business Strategy and the Environment* **2020**, *29*(4), 1734-1749. https://doi.org/10.1002/bse.2466
14. Borges de Oliveira, K., and de Oliveira, O. J. Making hospitals sustainable: Towards greener, fairer and more prosperous services. *Sustainability* **2022**, *14*(15), 9730. https://doi.org/10.3390/su14159730.
15. Aggestam, F., and Giurca, A. Implementing Circular- Bioeconomy Principles across Two Value Chains of the Wood-Based Sector: A Conceptual Approach. *Land* **2022**, *11*(11), 2037. https://doi.org/10.3390/land11112037.
16. Singhal, D., Jena, S. K., Aich, S., Tripathy, S., and Kim, H. C. Remanufacturing for circular economy: Understanding the impact of manufacturer's incentive under price competition. *Sustainability* (Switzerland) **2021**, 13(21 C7 - 11839). https://doi.org/10.3390/su132111839.
17. Bashynska, I., Malynovska, Y., Kolinko, N., Bielialov, T., Järvis, M., Kovalska, K., and Saiensus, M. Performance Assessment of Sustainable Leadership of Enterprise's Circular Economy-Driven Innovative Activities. *Sustainability (*Switzerland) **2024**, *16(*2 C7 - 558). https://doi.org/10.3390/su16020558.
18. Ruggerio, C. A. Sustainability and sustainable development: A review of principles and definitions. *Science of the Total Environment* **2021**, *786*, 147481. https://doi.org/10.1016/j.scitotenv.2021.147481.
19. Mensah, D., Ng, K. T. W., Hasan, M. M., Jeenat, R. E., and Hurlbert, M. Assessing non-hazardous solid waste business characteristics of Western Canadian provinces. *Ecological Informatics* **2023**, *75* C7 - 102030. https://doi.org/10.1016/j.ecoinf.2023.102030.
20. Tumuyu, S. S., Marthalia, L., and Asteria, D. Transition Thinking for Circular Agrobusiness Innovation - A Study Case on Agroindustry Company at Sumatera Island, Indonesia. *International Journal of Sustainable Development and Planning 2024*, *19*(2), 609-618. https://doi.org/10.18280/ijsdp.190218.
21. Donner, M., and de Vries, H. Innovative Business Models for a Sustainable Circular Bioeconomy in the French Agrifood Domain. *Sustainability* (Switzerland) **2023,** *15*(6 C7 - 5499). https://doi.org/10.3390/su15065499.
22. Otterbach, N., and Fröhling, M. (2024). Assessing the environmental impacts of product-service systems – the case of washing machines in Germany. *Resources, Conservation and Recycling* **2024,** *204* C7 - 107446. https://doi.org/10.1016/j.resconrec.2024.107446.
23. Cerdá-Suárez, L. M., Espinosa-Cristia, J. F., Núñez-Valdés, K., and Núñez-Valdés, G. (2023). Detecting Circular Economy Strategies in the Fourth Sector: Overview of the Chilean Construction Sector as Evidence of a Sustainable Business Model. *Sustainability* (Switzerland) **2023**, *15*(11 C7 - 8559). https://doi.org/10.3390/su15118559.
24. Pedersen, S., Clausen, C., and Jørgensen, M. S. Navigating value networks to co-create sustainable business models: An actionable staging approach. *Business Strategy and the Environment* **2023**, 32(1), 240-258. https://doi.org/10.1002/bse.3127.
25. Barbaritano, M., Bravi, L., and Savelli, E. Sustainability and quality management in the Italian luxury furniture sector: A circular economy perspective. *Sustainability* (Switzerland) **2019**, *11*(11 C7 - 3089). https://doi.org/10.3390/su11113089.
26. Bressanelli, G., Saccani, N., and Perona, M. Investigating Business Potential and Users' Acceptance of Circular Economy: A Survey and an Evaluation Model. *Sustainability* (Switzerland) **2022,** *14*(2 C7 - 609). https://doi.org/10.3390/su14020609.

27. Phelps, N. A., and Aritenang, A. The economic circularity of informality? Evidence from patterns of informal business innovation in Bandung. *Environment and Urbanization* **2023,** *35*(2), 390-410. https://doi.org/10.1177/09562478231191363.
28. Barford, A., and Ahmad, S. R. Levers for a corporate transition to a plastics circular economy. *Business Strategy and the Environment* **2023**, 32(4), 1203-1217. https://doi.org/10.1002/bse.3182.
29. Hiratsuka, J., Perlaviciute, G., and Steg, L. Testing VBN theory in Japan: Relationships between values, beliefs, norms, and acceptability and expected effects of a car pricing policy. *Transportation research part F: traffic psychology and behaviour* **2018**, *53*, 74-83.
30. Gomes, G. M., Moreira, N., Bouman, T., Ometto, A. R., and van der Werff, E. Towards Circular Economy for More Sustainable Apparel Consumption: Testing the Value-Belief-Norm theory in Brazil and in The Netherlands. *Sustainability* (Switzerland) **2022**, *14*(2 C7 - 618). https://doi.org/10.3390/su14020618.
31. Onday, O. Network Theory. *Project Management, Elixir Project Mgmt* **2016**, *91*, 37966-37972.
32. Gong, Y., Xie, S., Arunachalam, D., Duan, J., and Luo, J. Blockchain-based recycling and its impact on recycling performance: A network theory perspective. *Business Strategy and the Environment* **2022,** 31(8), 3717-3741. https://doi.org/10.1002/bse.3028.
33. Nguyen, T. Q. T., Young, T., Johnson, P., and Wearing, S. Conceptualising networks in sustainable tourism development. *Tourism Management Perspectives* **2019,** *32*, 100575. https://doi.org/10.1016/j.tmp.2019.100575.
34. Zaccone, M. C., Santhià, C., and Bosone, M. How Hybrid Organizations Adopt Circular Economy Models to Foster Sustainable Development. *Sustainability (Switzerland)* **2022**, *14*(5 C7 - 2679). https://doi.org/10.3390/su14052679.
35. Chiappetta Jabbour, C. J., Seuring, S., Lopes de Sousa Jabbour, A. B., Jugend, D., De Camargo Fiorini, P., Latan, H., and Izeppi, W. C. Stakeholders, innovative business models for the circular economy and sustainable performance of firms in an emerging economy facing institutional voids. *Journal of Environmental Management*, **2020**, *264 C7 - 110416*. https://doi.org/10.1016/j.jenvman.2020.110416.
36. Daglis, T., Tsironis, G., and Tsagarakis, K. P. Data mining techniques for the investigation of the circular economy and sustainability relationship. *Resources, Conservation and Recycling Advances* **2023,** *19* C7 - 200151. https://doi.org/10.1016/j.rcradv.2023.200151.
37. de Oliveira, C. T., and Oliveira, G. G. A. (2023). What Circular economy indicators really measure? An overview of circular economy principles and sustainable development goals. *Resources, Conservation and Recycling* **2023,** *190* C7 - 106850. https://doi.org/10.1016/j.resconrec.2022.106850.
38. Fonseca, L. M., Domingues, J. P., Pereira, M. T., Martins, F. F., and Zimon, D. Assessment of circular economy within Portuguese organizations. *Sustainability* (Switzerland) **2018**, *10*(7 C7 - 2521). https://doi.org/10.3390/su10072521.
39. Gandolfo, A., and Lupi, L. Circular economy, the transition of an incumbent focal firm: How to successfully reconcile environmental and economic sustainability? *Business Strategy and the Environment* **2021**, 30(7), 3297-3308. https://doi.org/10.1002/bse.2803.
40. García-Sánchez, I. M., Somohano-Rodríguez, F. M., Amor-Esteban, V., and Frías-Aceituno, J. V. (2021). Which region and which sector leads the circular economy? CEBIX, a multivariant index based on business actions. *Journal of Environmental Management* **2021**, *297* C7 - 113299. https://doi.org/10.1016/j.jenvman.2021.113299.
41. Guzzo, D., Rodrigues, V. P., and Mascarenhas, J. A systems representation of the Circular Economy: Transition scenarios in the electrical and electronic equipment (EEE) industry. *Technological Forecasting and Social Change* **2021**, *163* C7 - 120414. https://doi.org/10.1016/j.techfore.2020.120414.
42. Bocken, N., and Konietzko, J. Circular business model innovation in consumer-facing corporations. *Technological Forecasting and Social Change* **2022**, *185* C7 - 122076. https://doi.org/10.1016/j.techfore.2022.122076.
43. Chia, S. Y., Tanga, C. M., van Loon, J. J., and Dicke, M. Insects for sustainable animal feed: inclusive business models involving smallholder farmers. Current Opinion in Environmental Sustainability **2019,** *41*, 23-30. https://doi.org/10.1016/j.cosust.2019.09.003.
44. Bjørnbet, M. M., and Vildåsen, S. S. Life cycle assessment to ensure sustainability of circular business models in manufacturing. Sustainability (Switzerland) **2021**, 13(19 C7 - 11014). https://doi.org/10.3390/su131911014.
45. Corral-Marfil, J. A., Arimany-Serrat, N., Hitchen, E. L., and Viladecans-Riera, C. Recycling technology innovation as a source of competitive advantage: The sustainable and circular business model of a bicentennial company. *Sustainability* (Switzerland) **2021**, *13*(14 C7 - 7723). https://doi.org/10.3390/su13147723.
46. Ding, S., Tukker, A., and Ward, H. Opportunities and risks of internet of things (IoT) technologies for circular business models: A literature review. *Journal of Environmental Management* **2023**, *336* C7 - 117662. https://doi.org/10.1016/j.jenvman.2023.117662.

47. Monticelli, A., and Costamagna, M. Environmental assessment of the rental business model: a case study for formal wear. Environment, *Development and Sustainability* **2023**, *25*(8), 7625-7643. https://doi.org/10.1007/s10668-022-02363-x.
48. Morales, A. H. Exploring paradoxical tensions in circular business models-cases from North Europe. *Sustainability* (Switzerland) **2020**, 12(18 C7 - 7577). https://doi.org/10.3390/su12187577.
49. Ávila-Gutiérrez, M. J., Martín-Gómez, A., Aguayo-González, F., and Lama-Ruiz, J. R. Eco-holonic 4.0 circular business model to conceptualize sustainable value chain towards digital transition. *Sustainability (Switzerland)* **2020**, *12*(5 C7 - 1889), 1-32. https://doi.org/10.3390/su12051889
50. Rugani, B., Pölling, B., Della Casa, M., Guidolotti, G., Baldacchini, C., Timpe, A., and Calfapietra, C. Coupled life cycle assessment and business modelling to estimate the sustainability of using regenerated soils in urban forestry as nature-based solutions. *Urban Forestry and Urban Greening* **2024**, *95* C7 - 128327. https://doi.org/10.1016/j.ufug.2024.128327.
51. Ruiter, H., De Feijter, F., and Wagensveld, K. Management control and business model innovation in the context of a circular economy in the dutch construction industry. *Sustainability* (Switzerland) **2022**, *14*(1 C7 - 366). https://doi.org/10.3390/su14010366.
52. Ranta, V., Aarikka-Stenroos, L., and Väisänen, J. M. Digital technologies catalyzing business model innovation for circular economy—Multiple case study. *Resources, Conservation and Recycling* **2021**, *164* C7 - 105155. https://doi.org/10.1016/j.resconrec.2020.105155.
53. Khan, S. A. R., Razzaq, A., Yu, Z., and Miller, S. Industry 4.0 and circular economy practices: A new era business strategies for environmental sustainability. *Business Strategy and the Environment* **2021**, *30*(8), 4001-4014. https://doi.org/10.1002/bse.2853.
54. Sehnem, S., Provensi, T., da Silva, T. H. H., and Pereira, S. C. F. Disruptive innovation and circularity in start-ups: A path to sustainable development. *Business Strategy and the Environment* **2022**, *31*(4), 1292-1307. https://doi.org/10.1002/bse.2955
55. Sineviciene, L., Hens, L., Kubatko, O., Melnyk, L., Dehtyarova, I., and Fedyna, S. Socio-economic and cultural effects of disruptive industrial technologies for sustainable development. *International Journal of Global Energy Issues* **2021**, *43*(2-3), 284-305.
56. Kristoffersen, E., Mikalef, P., Blomsma, F., and Li, J. Towards a business analytics capability for the circular economy. *Technological Forecasting and Social Change* **2021**, *171* C7 - 120957. https://doi.org/10.1016/j.techfore.2021.120957.
57. Sani, D., Picone, S., Bianchini, A., Fava, F., Guarnieri, P., and Rossi, J. An overview of the transition to a circular economy in emilia-romagna region, Italy considering technological, legal–regulatory and financial points of view: A case study. *Sustainability* (Switzerland) **2021**, *13*(2 C7 - 596), 1-23. https://doi.org/10.3390/su13020596.
58. Kopnina, H. Metaphors of nature and economic development: Critical education for sustainable business. *Sustainability* (Switzerland) **2014**, *6*(11), 7496-7513. https://doi.org/10.3390/su6117496.
59. Gorissen, L., Vrancken, K., and Manshoven, S. Transition thinking and business model innovation-towards a transformative business model and new role for the reuse centers of Limburg, Belgium. *Sustainability* (Switzerland) **2016**, *8*(2 C7 - 112). https://doi.org/10.3390/su8020112.
60. Bocken, N., Morales, L. S., and Lehner, M. Sufficiency business strategies in the food industry-the case of Oatly. *Sustainability* (Switzerland) **2020**, *12*(3 C7 - 824). https://doi.org/10.3390/su12030824.
61. Aid, G., Eklund, M., Anderberg, S., and Baas, L. Expanding roles for the Swedish waste management sector in inter-organizational resource management. *Resources, Conservation and Recycling* **2017**, *124*, 85-97. https://doi.org/10.1016/j.resconrec.2017.04.007.
62. Alfano, M. R., Cantabene, C., Lepore, A., and Palermo, S. The green to circular bioeconomy transition: Innovation and resilience among Italian enterprises. *Business Strategy and the Environment* **2023**, *32*(8), 6094-6105. https://doi.org/10.1002/bse.3474.
63. Chiappetta Jabbour, C. J., Fiorini, P. D. C., Ndubisi, N. O., Queiroz, M. M., and Piato, É. L. Digitally-enabled sustainable supply chains in the 21st century: A review and a research agenda. *Science of the Total Environment* **2020**, *725* C7 - 138177. https://doi.org/10.1016/j.scitotenv.2020.138177.
64. Lambrechts, W. Ethical and sustainable sourcing: toward strategic and holistic sustainable supply chain management. In Decent work and economic growth **2020**, (pp. 402-414). Cham: Springer International Publishing.
65. Sawe, F. B., Kumar, A., Garza-Reyes, J. A., and Agrawal, R. Assessing people-driven factors for circular economy practices in small and medium-sized enterprise supply chains: Business strategies and environmental perspectives. *Business Strategy and the Environment* **2021**, *30*(7), 2951-2965. https://doi.org/10.1002/bse.2781.
66. Rodrigues, M., and Franco, M. Green Innovation in Small and Medium-Sized Enterprises (SMEs): A Qualitative Approach. *Sustainability* (Switzerland) **2023**, *15*(5 C7 - 4510). https://doi.org/10.3390/su15054510.
67. Deda, D., Barros, M. V., Rigueiro, C., and Ribau Teixeira, M. From Linear to Circular Ideas: An Educational Contest. *Sustainability* (Switzerland) **2022**, *14*(18 C7 - 11207). https://doi.org/10.3390/su141811207.

68. Dressler, M. Sustainable Business Model Design: A Multi-Case Approach Exploring Generic Strategies and Dynamic Capabilities on the Example of German Wine Estates. *Sustainability* (Switzerland) **2023**, *15*(5 C7 - 3880). https://doi.org/10.3390/su15053880.
69. Henry, M., Hoogenstrijd, T., and Kirchherr, J. Motivations and identities of "grassroots" circular entrepreneurs: An initial exploration. *Business Strategy and the Environment* **2023**, *32*(3), 1122-1141. https://doi.org/10.1002/bse.3097.
70. Singh, R., Khan, S., and Centobelli, P. Investigating the Interplay between Social Performance and Organisational Factors Supporting Circular Economy Practices. *Sustainability* (Switzerland) **2022**, *14*(24 C7 - 16781). https://doi.org/10.3390/su142416781.
71. Jayarathna, C. P., Agdas, D., and Dawes, L. Exploring sustainable logistics practices toward a circular economy: A value creation perspective. *Business Strategy and the Environment* **2023**, *32*(1), 704-720. https://doi.org/10.1002/bse.3170.
72. Kurniawan, T. A., Othman, M. H. D., Liang, X., Goh, H. H., Gikas, P., Kusworo, T. D., . . . Chew, K. W. Decarbonization in waste recycling industry using digitalization to promote net-zero emissions and its implications on sustainability. *Journal of Environmental Management* **2023**, *338* C7 - 117765. https://doi.org/10.1016/j.jenvman.2023.117765.
73. Vural Gursel, I., Elbersen, B., and Meesters, K. P. H. Monitoring circular biobased economy – Systematic review of circularity indicators at the micro level. *Resources, Conservation and Recycling* **2023**, *197* C7 - 107104. https://doi.org/10.1016/j.resconrec.2023.107104.
74. Lamptey, T., Owusu-Manu, D. G., Acheampong, A., Adesi, M., and Ghansah, F. A. A framework for the adoption of green business models in the Ghanaian construction industry. *Smart and Sustainable Built Environment* **2021**, *10*(3), 536-553. https://doi.org/10.1108/SASBE-08-2020-0130.
75. Lang, S., Minnucci, G., Mueller, M., and Schlaile, M. P. The Role of Consumers in Business Model Innovations for a Sustainable Circular Bioeconomy. *Sustainability* (Switzerland) **2023**, *15*(12 C7 - 9573). https://doi.org/10.3390/su15129573.
76. Hunka, A. D., Linder, M., and Habibi, S. Determinants of consumer demand for circular economy products. A case for reuse and remanufacturing for sustainable development. *Business Strategy and the Environment* **2021**, *30*(1), 535-550. https://doi.org/10.1002/bse.2636.
77. Donner, M., Erraach, Y., López-i-Gelats, F., Manuel-i-Martin, J., Yatribi, T., Radić, I., and El Hadad-Gauthier, F. Circular bioeconomy for olive oil waste and by-product valorisation: Actors' strategies and conditions in the Mediterranean area. *Journal of Environmental Management* **2022**, *321* C7 - 115836. https://doi.org/10.1016/j.jenvman.2022.115836.
78. Ta, A. H., Aarikka-Stenroos, L., and Litovuo, L Customer Experience in Circular Economy: Experiential Dimensions among Consumers of Reused and Recycled Clothes. *Sustainability* (Switzerland) **2022,** *14*(1 C7 - 509). https://doi.org/10.3390/su14010509.
79. Salvioni, D. M., and Almici, A. Transitioning toward a circular economy: The impact of stakeholder engagement on sustainability culture. Sustainability (Switzerland) **2020**, *12*(20 C7 - 8641), 1-30. https://doi.org/10.3390/su12208641.
80. Donner, M., and de Vries, H. How to innovate business models for a circular bio-economy? *Business Strategy and the Environment* **2021**, *30*(4), 1932-1947. https://doi.org/10.1002/bse.2725.
81. Ali, M. I. M., and Choe, P. Independent User Circular Behaviors and Their Motivators and Barriers: A Review. Sustainability (Switzerland) **2022**, *14*(20 C7 - 13319). https://doi.org/10.3390/su142013319.
82. Arekrans, J., Sopjani, L., Laurenti, R., and Ritzén, S. Barriers to access-based consumption in the circular transition: A systematic review. *Resources, Conservation and Recycling* **2022**, *184* C7 - 106364. https://doi.org/10.1016/j.resconrec.2022.106364.
83. Fraccascia, L., Sabato, A., and Yazan, D. M. An industrial symbiosis simulation game: Evidence from the circular sustainable business development class. *Journal of Industrial Ecology* **2021**, *25*(6), 1688-1706. https://doi.org/10.1111/jiec.13183.
84. Mittal, S., Khan, M. A., Yadav, V., and Sharma, M. K. Footwear as product-service systems: Toward sustainable alternative consumption scenarios. *Business Strategy and the Environment* **2024**, *33*(2), 726-741. https://doi.org/10.1002/bse.3519.
85. Mondello, A., Salomone, R., and Mondello, G. Exploring circular economy in the cosmetic industry: Insights from a literature review. E*nvironmental Impact Assessment Review* **2024**, *105* C7 - 107443. https://doi.org/10.1016/j.eiar.2024.107443.
86. Islam, M. T., and Iyer-Raniga, U. Circular Business Model Value Dimension Canvas: Tool Redesign for Innovation and Validation through an Australian Case Study. *Sustainability (Switzerland)* **2023,** *15*(15 C7 - 11553). https://doi.org/10.3390/su151511553.
87. Ho, C. H., Böhm, S., and Monciardini, D. The collaborative and contested interplay between business and civil society in circular economy transitions. *Business Strategy and the Environment* **2022**, *31*(6), 2714-2727. https://doi.org/10.1002/bse.3001.

88. Jayarathna, C. P., Agdas, D., and Dawes, L. Viability of sustainable logistics practices enabling circular economy: A system dynamics approach. *Business Strategy and the Environment* **2024,** 33(4), 3422-3439. https://doi.org/10.1002/bse.3655.
89. Peterson, M., Minton, E. A., Liu, R. L., and Bartholomew, D. E. Sustainable marketing and consumer support for sustainable businsses. *Sustainable Production and Consumption* **2021**, 27, 157-168. https://doi.org/10.1016/j.spc.2020.10.018.
90. Danciu, V. The contribution of sustainable marketing to sustainable development. *Management and Marketing* **2013**, *8*(2), 385.
91. Kanda, W., Geissdoerfer, M., and Hjelm, O. From circular business models to circular business ecosystems. *Business Strategy and the Environment* **2021**, *30*(6), 2814-2829. https://doi.org/10.1002/bse.2895.
92. Latif, A., Cahyandito, M. F., and Utama, G. L. Dynamic System Modeling and Sustainability Strategies for Circular Economy-Based Dairy Cow Waste Management. *Sustainability* (Switzerland) **2023**, *15*(4 C7 - 3405). https://doi.org/10.3390/su15043405.
93. Li, L., Msaad, H., Sun, H., Tan, M. X., Lu, Y., and Lau, A. K. W. Green innovation and business sustainability: New evidence from energy intensive industry in China. *International Journal of Environmental Research and Public Health* **2020**, *17*(21 C7 - 7826), 1-18. https://doi.org/10.3390/ijerph17217826.
94. Maillefert, M., and Robert, I. New business models and sustainability. Illustrations from a collective action approach. *Natures Sciences Societes* **2020**, *28*(2), 131-144. https://doi.org/10.1051/nss/2020031.
95. Matešić, M. Eco-innovations for sustainable development. *Socijalna Ekologija* **2020**, *29*(2), 149-152. https://doi.org/10.17234/SocEkol.29.2.1.
96. Melendez, J. R., Delgado, J. L., Chero, V., and Franco-Rodríguez, J. Circular economy: A review from business models and corporate social responsibility. *Revista Venezolana de Gerencia* **2021,** *26* (Special Issue 6), 560-573. https://doi.org/10.52080/rvgluz.26.e6.34.
97. Galvão, G. D. A., Evans, S., Ferrer, P. S. S., and de Carvalho, M. M. Circular business model: Breaking down barriers towards sustainable development. *Business Strategy and the Environment* **2022**, *31*(4), 1504-1524. https://doi.org/10.1002/bse.2966.
98. Hugo, A. A., de Nadae, J., and Lima, R. D. S. Can fashion be circular? A literature review on circular economy barriers, drivers, and practices in the fashion industry's productive chain. *Sustainability* (Switzerland) **2021**, *13*(21 C7 - 12246). https://doi.org/10.3390/su132112246.
99. Geissdoerfer, M., Santa-Maria, T., Kirchherr, J., and Pelzeter, C. Drivers and barriers for circular business model innovation. Business Strategy and the Environment **2023**, *32*(6), 3814-3832. https://doi.org/10.1002/bse.3339.
100. Stucki, T., Woerter, M., and Loumeau, N. Clearing the fog: How circular economy transition can be measured at the company level. *Journal of Environmental Management* **2023**, *326* C7 - 116749. https://doi.org/10.1016/j.jenvman.2022.116749.
101. von Kolpinski, C., Yazan, D. M., and Fraccascia, L. The impact of internal company dynamics on sustainable circular business development: Insights from circular startups. *Business Strategy and the Environment* **2023**, *32*(4), 1931-1950. https://doi.org/10.1002/bse.3228.
102. Hernández-Chea, R., Jain, A., Bocken, N. M. P., and Gurtoo, A. The business model in sustainability transitions: A conceptualization. *Sustainability* (Switzerland) **2021**, *13*(11 C7 - 5763). https://doi.org/10.3390/su13115763.
103. Poponi, S., Colantoni, A., Cividino, S. R. S., and Mosconi, E. M. The Stakeholders' perspective within the B corp certification for a circular approach. *Sustainability* (Switzerland) **2019**, *11*(6 C7 - 1584). https://doi.org/10.3390/su11061584.
104. Hofmann, F., and Jaeger-Erben, M. Organizational transition management of circular business model innovations. *Business Strategy and the Environment* **2020**, *29*(6), 2770-2788. https://doi.org/10.1002/bse.2542.
105. Camilleri, M. A. European environment policy for the circular economy: Implications for business and industry stakeholders. *Sustainable Development* **2020**, *28*(6), 1804-1812. https://doi.org/10.1002/sd.2113.
106. Nohra, C. G., Pereno, A., and Barbero, S. Systemic design for policy-making: Towards the next circular regions. *Sustainability* (Switzerland) **2020**, *12*(11 C7 - 4494). https://doi.org/10.3390/su12114494.
107. De Laurentiis, V., Caldeira, C., Sala, S., and Tonini, D. Life cycle thinking for the assessment of waste and circular economy policy: status and perspectives from the EU example. *Waste Management* **2024,** *179*, 205-215. https://doi.org/10.1016/j.wasman.2024.02.037.
108. Marrucci, L., Iannone, F., Daddi, T., and Iraldo, F. (2022). Antecedents of absorptive capacity in the development of circular economy business models of small and medium enterprises. *Business Strategy and the Environment* **2022**, *31*(1), 532-544. https://doi.org/10.1002/bse.2908.
109. Gasde, J., Woidasky, J., Moesslein, J., and Lang-Koetz, C. Plastics recycling with tracer-based-sorting: Challenges of a potential radical technology. *Sustainability* (Switzerland) **2021**, *13*(1 C7 - 258), 1-16. https://doi.org/10.3390/su13010258.

 doi:10.20944/preprints202406.1697.v1

110. Meyer, D., Schaupensteiner, N., and Riquel, J. Business Models and Ecosystems in the Circular Economy Using the Example of Battery Second Use Storage Systems. *Sustainability* (Switzerland) **2024**, *16*(5 C7 - 1906). https://doi.org/10.3390/su16051906.
111. Sarfraz, M., Ivascu, L., Belu, R., and Artene, A. Accentuating the interconnection between business sustainability and organizational performance in the context of the circular economy: The moderating role of organizational competitiveness. *Business Strategy and the Environment* **2021**, *30*(4), 2108-2118. https://doi.org/10.1002/bse.2735.